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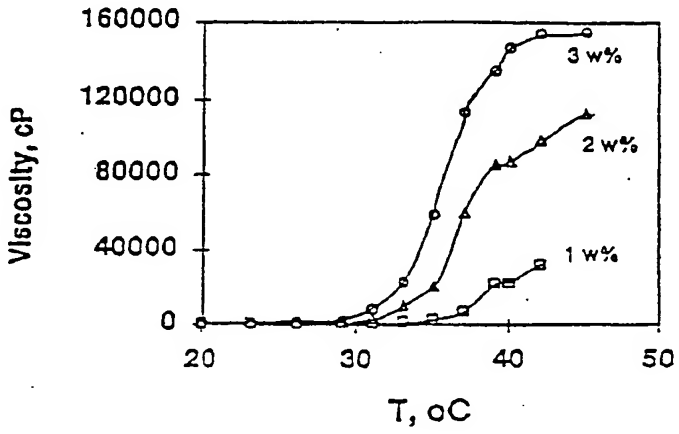
(57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous–based medium.



COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application PCT/US96/10376 filed June 14, 1996, designating the United States, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application U.S.S.N. 08/580,986 filed January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their Use", each of which is incorporated entirely by reference.

Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of topical and personal care products, including treatments of disorders and imperfections of the skin or other areas of the body. More particularly, the present invention is directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid) polymer network that can be designed to reversibly gel over a wide range of conditions to provide a composition having a controllable range of viscosities, making it useful in a variety of cosmetic and personal care applications.

Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of the skin or elsewhere on the body, where it is desired to have certain properties of viscosity. Hydrogels, such as cellulosics, have been included as thickeners in cosmetic compositions. A hydrogel is a polymer network which absorbs a large quantity of water without the polymer dissolving in water. The hydrophilic areas of the polymer chain absorb water and form a gel region. The extent of gelation depends upon the volume of the solution which the gel region occupies.

Reversibly gelling solutions are known in which the solution viscosity increases

are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi *et al.*

Hoffman *et al.* in WO 95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component. The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which is includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

It is a further object of the invention to provide a polymer network for use in

personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products, acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of preferably 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile crosslinking or other factors. The poloxamer has the general formula of a triad ABA block copolymer, $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic compositions to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response with temperature. The polymer network may be useful as a thickener in pH ranges where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity loss at elevated temperatures.

Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

Figure 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt% and 3 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid)

(1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec^{-1};

Figure 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 2.64 sec^{-1};

Figure 14 is a graph of the viscosity vs. temperature effect for a responsive polymer network composition of 2 wt% Pluronic® P104 poloxamer/poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec^{-1};

Figure 15 is plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer/poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec^{-1}:

Figure 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec^{-1};

Figure 17 is a plot showing release of hemoglobin from a poloxamer/poly(acrylic acid) polymer network of the invention:

Figure 18 is a plot showing the release of lysozyme from the poloxamer/poly(acrylic acid) polymer complex of the invention:

Figure 19 is a plot showing release of insulin from a poloxamer/poly(acrylic acid) polymer network composition of the invention:

Figure 20 is a plot of viscosity vs. temperature for a poloxamer/poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave:

Figure 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared from (a) a responsive polymer network composition of the invention and (b) a conventional oil-in-water formulation;

Figure 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

Figure 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions:

greater, preferably at least about 10 times greater, and even more preferably at least about 30 times and up to 100 times greater, viscosity upon increase in temperature of about 10 °C and preferably about 5 °C. The reversibly gelling polymer network of the present invention exhibit gelation even at very low polymer concentrations. For example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%. Thus, only a small amount by weight of the polymer network need be incorporated into a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus, the inventive polymer network of the present invention may have a transition temperature (i.e. temperature of aggregation) above room temperature so that the cosmetic composition is of low viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be

after polymerization of PAA remains associated with the random co-polymer, resulting in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

The poly(acrylic acid) may be linear, branched and/or crosslinked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By ionization, as that term is used with respect to poly(acrylic acid), it is meant the formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer. Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. The viscosifying effect of the polymer network is partly a function of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

The poloxamer possesses regions of hydrophobic character, e.g., poly(propylene glycol) blocks, and hydrophilic character, e.g., poly(ethylene glycol) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad block copolymers of poly(ethylene glycol) and poly(propylene glycol) having the general formula $(P_1)_a(P_2)_b(P_1)_a$, where P_1 = poly(ethylene glycol) and P_2 = poly(propylene glycol) blocks, where a is in the range of 10-50 and where b is in the range of 50-70, where poly(propylene glycol) represents the hydrophobic portion of the polymer and poly(ethylene glycol) represents the hydrophilic portion of the polymer. Pluronic® polymers (BASF) are commercially available for *a* in the range of 16 to 48 and *b* ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

The reversibly gelling responsive polymer networks compositions of the present

poloxamer:poly(acrylic acid) polymer network composition does not permanently loose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple lime) and stirring with that of a polymer composition of similar composition prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration. pH and presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories. hair straighteners and hair relaxers.

The responsive polymer network may also include additives for influencing the performance of the polymer composition. such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride. sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride. phenoxyethanol, sodium hydroxymethylglycinate. ethylparaben. benzoyl alcohol. methylparaben. propylparaben.

cps. See, Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1,500 cps (see, Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the transition temperature to a slightly lower range from an initial 24-34 °C to about 24-30 °C, but does not affect the final viscosity (see, Example 44). The effect of ethanol on the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29 °C and 20-29 °C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See, Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41 °C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion through out the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see, Example 36). It is also preferred that the agent(s) is nonreactive with the polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of the present invention may be prepared under sterile conditions. An additional feature

of the reversibly gelling polymer composition is that is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

Reaction testes	mode of testing	results
Skin sensitization	guinea pig - topical	not a sensitizer
eye irritation	rabbit eye instillation	negative
primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
acute oral toxicity	rat - single dose (5g/kg)	no toxicity
AMES test		negative

Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to,baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablet and salts, bubble baths, bath fragrances and bath capsules;-eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and

cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, anitperspirants, antiseptics, antistatic agents, astringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances . Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. A listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries; C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservatives can be desirably incorporated into the cosmetic compositions of the invention to protect against the growth of potentially harmful microorganisms.

diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate; 5. alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like; 6. fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like; 7. fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl, ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like, 8. fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 ethylene oxide groups or 1 to 50 propylene oxide groups; 9. ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. Lanolin and derivatives, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption basesand the like; 11. polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, diethylene glycol mono-and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid esters, propylene glycol mono- and di-fatty acid esters, polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory polyhydric alcohol esters; 12. wax esters such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. beeswax derivatives, e.g. polyoxyethylene sorbitol beeswax; 14. vegetable waxes including carnauba and candelilla waxes; 15. phospholipids such as lecithin and derivatives; 16. sterol including cholesterol and cholesterol fatty acid

By way of example only, in the case of protection against free radical agents, vitamin E (against $COO^{\cdot}$ radicals), superoxide dismutase (against $O_2^{\cdot}$ free radicals) and sugar and caffeine (against $OH^{\cdot}$ free radicals).

By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, pirprofen, carporfen, and bucloxic acid and the like.

By way of example only, in the case of antibiotics and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of β-lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methenamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexyl N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicylate, octyl salicylate, 4,4'-methoxy-t-butyldibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-

phenol.

A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care products.

The reversible viscosification of the polymer network at elevated temperatures makes the materials ideal for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions. Currently emulsifiers are often negatively effected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive polymer network will also act as a stabilizer for oil-soluble ingredients that would

10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques. The initiator may be a free radical initiator, such as chemical free radical initiators and uv or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1,2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic or ionic initiators. Many variations of this methods will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional techniques, such as, by way of example, dialysis or sohxlet extraction.

Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic routes may in fact occur in the formation of the polymer network of the present invention.

moiety to the unsaturated bond of acrylic acid (eq. 10) and subsequent propagation of the PAA chain.

Thus the polymer network may include a plurality of poly(acrylic acid)) units bonded to a single poloxamer unit or, alternatively, a plurality of poloxamer units bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent such as hexane or heptane. The aggregating polymer/monomer solution is dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e., addition of a initiator or irradiation) in order to polymerize the monomer and form responsive polymer network beads. See, U.S.S.N. 08/276,532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are provided for the purposes of illustration and which are in no way limiting of the invention.

Example 1 This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethylene glycol) and poly(propylene glycol), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

Synthesis. Block copolymer of poly(propylene glycol) (PPG) and poly(ethylene glycol) (PEG) having triad ABA structure $(PEG)_A(PPG)_B(PEG)_A$ (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" means 12X300=3600 - MW of the PPG section of the block copolymer, "7" PEG in

polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 w% in water, adjusted to pH 6 or higher) or physical blends of the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. This example describes a standard operating procedure for the manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to sodium acrylate is allowed to dissolve. Pluronic® F127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. The monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 minutes and then heating began. Heating began at a rate of 0.5-1.0 °C/min up to 75 °C. The reaction began to exotherm at about 45-50 °C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75 °C using forced cooling. The reaction continued for 12 hours and was then cooled to 35 °C. The slurry was transferred into pails and the polymer beads were allowed to settle.

The slurry was filtered through Buchner Funnels with filter paper (11 µm pore

polymère retiré?

poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15 % by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bonded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellular, aggregated form with

Table 2.

example	poloxamer	poloxamer composition	poloxamer: PAA	trans. temp.	comments
3	Pluronic® F88 Prill polyol	2400 MW PPG; 80 wt% PEG; nominal MW 11,400	1:1	48 °C	viscosity response curve shown in Figure 13
4	Pluronic® F127 NF polyol	3600 MW PPG; 70 wt% PEG; nominal MW 12,600	1:1	30 °C	pentaerythritol triallyl ether crosslink agent used
5	Pluronic® P104 polyol	3000 MW PPG; 40 wt% PEG; nominal MW 5,900	1:1	28 °C	viscosity response curve shown in Figure 14
6	Pluronic® P123 polyol	3600 MW PPG; 30 wt% PEG; nominal MW 5,750	1:1	25 °C	viscosity response curve shown in Figure 15
7	Pluronic® F127/Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42 °C	polymer solid formed, dried; resolubilized in neutralizing solution
8	Pluronic® F88 polyol	as above	1:1.7	80 °C	polymer solid formed, dried; resolubilized in neutralizing solution
9	Pluronic® F127/Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85 °C	polymer solid formed, dried; resolubilized in neutralizing solution

Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network compositions were prepared from the following poloxamers shown in Table 3.

responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series $(PEG)_{37}(PPG)_{56}(PEG)_{37}$(F103) > $(PEG)_{25}(PPG)_{56}(PEG)_{25}$(F104) > $(PEG)_{16}(PPG)_{56}(PEG)_{16}$(F105) and, secondly, the temperature at which gelation shifts from about 45°C for $(PEG)_{37}(PPG)_{56}(PEG)_{37}$ to about 35°C for $(PEG)_{25}(PPG)_{56}(PEG)_{25}$ and $(PEG)_{16}(PPG)_{56}(PEG)_{16}$. Both results are in excellent agreement with the theory set forth in Linse.

Example 11. The following example is related to release of and active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N_2 bubbling for 0.5 h and following addition of 100 Fl of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase was withdrawn from time to time and their absorbance was measured spectrophotometrically at 400 nm.

In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using Micrococcus lysodeikticus cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 5 mg/ml solution of bovine Zn^{2+}-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (# 2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

Example 14. This example demonstrates the preparation of a sterile reversibly gelling polymer network aqueous composition and the stability of the composition to sterilization. The polymer network is prepared as described in Example 1, except that

Table 4.

Example No.	Additive (wt%)	Effect of additive on:	
		transition temp. (°C)	final viscosity (% change)
15	1,2-methyl pyrrolidone (5)	I (1.8)	N
16	Rhodapex CO-436 (2)	I (1.6)	N
17	Dow Corning 190 (2)	I (5)	I (150)
18	isopropyl alcohol (0.5)	I (3.1)	I (45)
19	Pluronic® L122 (1)	D (4.4)	D (13)
20	Pluronic® F88 (1)	N	I (41)
21	Tween 80 (0.5)	N	I (18)
22	Germaben® II (1)	D (9)	I (100)
23	Iconol NP-6 (1)	D (9)	I (500)
24	Plurafac C-17 (0.5)	I (5.2)	D (36)
25	Dow Corning 193 (0.75)	I (4.1)	D (12)
26	glycerin (5)	D (2)	N
27	UC 50-HB-170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

I = increase; D = decrease; and N = no change

of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol[1]	2.5
Mineral Oil	5.0

[1] Crodafos CES available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a anionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network prepared as in Example 1	20.0
Glycerin USP	5.0
Salicylic Acid	2.0
DL-Panthenol	0.5
Germaben® II[1]	0.1
Disodium EDTA	0.2
USP Purified Water	72.2

[1] Germaben®II available from Sutton Laboratories

To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop,

Table 9.

Ingredient	% w/w
10% wt 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propioniate	3.0
DL-Panthenol	0.5
Germaben® II[1]	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

[1] Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (>900,000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See, Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricious moisturizer was made by combing the following ingredients utilizing conventional mixing techniques:

Table 11.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C. the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 35. Facial mask. A face mask was made by combing the following ingredients utilizing conventional mixing techniques:

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 36. Solubilization studies of model hydrophobic agents in the poloxamer: poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

Acrylic acid (99%), fluorescein (98%), β-estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 w% reversibly gelling polymer network was measured using He-Ne laser as described previously (See, Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured by the equilibration of excess solubilizate with the corresponding solution following removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H_2SO_4/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostatted, vertical Franz cells. Spunbonded polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in

standard free energy change (ΔG), standard enthalpy of solubilization (ΔH), and standard entropy of solubilization (ΔS) using the following expressions:

$$\Delta G = -RT\ln P;\ \Delta H = -R\Delta \ln P/\Delta(1/T);\ \Delta S = (\Delta H - \Delta G)/T \qquad (14)$$

Thermodynamic parameters obtained along with P values are given in Table 13.

Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 13.

T, K	P=SSH/S	ΔG kJ/mol	ΔH kJ/mol	ΔS J/mol
277	490	-14.3	4.72	68.6
293	520	-15.2		52.0
310	660	-16.7		53.9
323	660	-17.4		54.0
333	660	-18.0		54.0

Negative ΔG values indicate spontaneous solubilization at all temperatures, whereas positive ΔH shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably, ΔS of solubilization was always positive, suggesting that the more ordered water molecules surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can express the free energy of formation of the aggregate core-water interface in responsive polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D\phi](4\pi R^2/n) \qquad (15)$$

where σP_w and σW_D are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively; ϕ is the volume fraction of the drug within PPO core; R is the effective radius of the core, and n is the aggregation number.

network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

Appendix A attached.

Peroxide stabilizer: see Stabilizer

Pigment: a finely powdered insoluble substance used to impart color, luster or opacity

Plasticizer: plasticizes (makes more flexible) polymeric films or fibers

Polish: smoothes; adds gloss and luster

Polymer: a very high molecular weight compound consisting of repeating structural units

Powder: a solid in the form of fine particles

Preservative: protects products from spoilage by microorganisms

Propellant: pressurized gas in a container used to expel the contents when pressure is released by opening a valve

Protein: naturally occurring complex combinations of amino acids

Reducing agent: reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents

Refatting agent: adds oils materials to the surface of substrates, e.g., skin and hair

Resin: nonvolatile solid or semisolid organic substances obtained from plants as exudates or prepared by polymerization of simple molecules

Sequestrant: forms coordination complexes with multivalent positive ions

Silicone: polymeric organic silicon compounds which are water resistant

Skin protectant: protects skin from environmental

Solubilizer: solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.

Solvent: usually liquids capable of dissolving other substances

Stabilizer: added to stabilize emulsions and/or suspensions

Stimulant: produces a temporary increase in the functional activity of an organism or any of its parts

Surfactant (surface-active agent): lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge

Suspending agent: keeps finely divided solid particles in suspension

Sweetener: sweetens to provide a more pleasant taste

Tanning accelerator: accelerates the tanning of skin

Thickener: thickens or increases viscosity/consistency

Thixotrope: the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred

UV absorber: used as a sunscreen and to protect preparations from degradation by UV radiation

UVA absorber: absorbs in the range 320–400 nanometers (nm)

UVB absorber: absorbs in the range 290–320 nanometers (nm)

Wax: any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum products are mainly high-molecular-weight hydrocarbons

Wetting agent: a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

Functions

Kaolin
Magnesium myristate, M. silicate
Polyethylene, micronized
Silica silylate
Sodium aluminum silicate
Zinc stearate

Anticaries agent
Cetylamine hydrofluoride
Olaflur
Sodium fluoride
Stearyl trihydroxyethyl propylenediamine dihydrofluoride

Anticellulite
Aminophylline
Bladderwrack (Fucus vesiculosus) extract
Butcherbroom (Ruscus aculeatus) extract
Carcinia cambogia extract
Fomes fomentarius extract
Fomistopsis pinicola extract
Ivy extract
Mushroom (Coriolus versicolor) extract
TEA-hydriodide
Tricholoma matsutake extract

Antidandruff
Burdock (Arctium lappa) extract
Chloroxylenol
Corydalis ambigua extract
Disodium undecylenamido MEA-sulfosuccinate
Ginger root extract
Inga edulis extract
Mauritiella armata extract
Myristalkonium saccharinate
PEG-6 undecylenate
Piroctone olamine
Resorcinol
Rosemary (Rosmarinus officinalis) extract
Sodium shale oil sulfonate
Stenocalyx micalii extract
Undecylenamide DEA
Willow (Salix alba) bark extract
Zinc pyrithione

Antifungal
Black walnut (Juglans nigra) extract
Coneflower (Echinacea angustifolia) extract
Orange blossom extract
Pfaffia paniculata extract

Anti-inflammatory
Allantoin polygalacturonic acid
Bisabolol
Black poplar (Populus nigra) extract
Brassica rapa-depressa extract
Butcherbroom (Ruscus aculeatus) extract
Calendula officinalis extract
Catalpa kaempfera extract
Celastrus paniculata extract
Ceramide 33 (liquid soy extract)
Chaparral (Larrea mexicana) extract
Coneflower (Echinacea angustifolia) extract
Cornflower (Centaurea cyanus) extract
Dipotassium glycyrrhizinate
Euphotorium fortunei extract
Eupurasia officinalis extract
Ficus racemosa extract
Golden seal (Hydrastis canadensis) root extract
Guaiazulene
Horse chestnut (Aesculus hippocastanum) extract
Jujube (Zizyphus jujuba) extract
Laminaria japonica extract
Licorice (Glycyrrhiza glabra) extract
Ligusticum jeholense, L. lucidum extract
Matricaria (Chamomilla recutita) extract
Melaleuca uncinata extract
Melia azadirachta extract
Mulberry (Morus nigra) extract
Niacinamide ascorbate
Orange (Citrus aurantium dulcis) peel extract
Orange blossom extract
Palmetto extract
Palmitoyl collagen amino acids
Passion flower (Passiflora laurifolia) fruit extract
Paulownia imperialis extract
Salicylic acid
Shea butter (Butyrospermum parkii)
Sodium carboxymethyl beta-glucan
Soy (Glycine soja) protein
Stearyl glycyrrhetinate
Stenocalyx micalii extract
Tocopheryl acetate, T. nicotinate
Trichomonas japonica extract
Willow (Salix alba) extract
Witch hazel (Hamamelis virginiana) extract
Withania somniferum extract
Yarrow (Achillea millefolium) extract
Zinc lactate

Anti-irritant
Acetyl monoethanolamine
Allantoin
Allantoin acetyl methionine, A. glycyrrhetinic acid
Azelamide MEA
Betaine
Calendula officinalis extract
Cocamidopropyl betaine
Coceth-7 carboxylic acid
Cornflower (Centaurea cyanus) extract
Diisostearyl dimer dilinoleate
Dipalmitoyl cystine
Green tea extract
Hydrolyzed sweet almond protein
Hydroxypropyltrimonium gelatin
Lauroyl collagen amino acids
l-Lysine lauroyl methionine
Mallow extract
Matricaria (Chamomilla recutita) extract
Palmitoyl hydrolyzed milk protein
Palmitoyl hydrolyzed wheat protein
Palmitoyl keratin amino acids
PEG-12 palm kernel glycerides
PEG-28 glyceryl tallowate
PEG-30 glyceryl monococoate
PEG-60 almond glycerides
PEG-78 glyceryl cocoate
PEG-82 glyceryl tallowate
PEG-200 glyceryl tallowate
Propionyl collagen amino acids
PVP
Saccharomyces lysate extract
Sodium C12-15 pareth-15 sulfonate
Sodium lauroamphoacetate
Soy (Glycine soja) protein
Undecylenoyl collagen amino acids
Valerian (Valeriana officinalis) extract

Antimicrobial
Benzalkonium chloride
Benzoic acid
Benzyl alcohol
Bromochlorophene
2-Bromo-2-nitropropane-1,3-diol
Butylparaben
Capryloyl collagen amino acids
Capryloyl glycine, C. keratin amino acids
Captan
Cetethyldimonium bromide
Cetyl pyridinium chloride
Chlorothymol
Chloroxylenol
Citron oil
Copper PCA
Dichlorobenzyl alcohol
Dilauryldimonium chloride
Domiphen bromide
Ethylparaben
Eucalyptus (Eucalyptus globulus) extract
Fennel (Foeniculum vulgare) extract
Garlic (Allium sativum) extract
Glyceryl caprylate, G. laurate
Hexamidine diisethionate
Hinokitiol
Honeysuckle (Lonicera caprifolium) extract
Lichen (Usnea barbata) extract
Myristalkonium chloride
Pentylene glycol
Phenethyl alcohol
Phenol
Phenoxyethanol
Phenoxyisopropanol
Phenyl mercuric acetate, P.m. benzoate, P.m. borate
o-Phenylphenol
Polymethoxy bicyclic oxazolidine
Potassium sorbate
Propylparaben
Ricinoleamodopropyltrimonium ethosulfate
Sage (Salvia officinalis) extract
Sodium benzoate, S. pyrithione
Sodium ricinoleate, S. shale oil sulfonate
Thimerosal
Thyme (Thymus vulgaris) extract
Thymol
Triclocarban
Triclosan
Undecylenamidopropyltrimonium methosulfate
Undecylenic acid
Zinc oxide, Z. PCA
Zinc pyrithione, Z. undecylenate

Antioxidant
Ascorbic acid
A. polypeptide
Ascorbyl oleate, A. palmitate
Beta-carotene
BHA
BHT
t-Butyl hydroquinone
Dilauryl thiodipropionate
Dimyristyl thiodipropionate
Disodium EDTA
Distearyl thiodipropionate
Dodecyl gallate
EDTA
Erythorbic acid
Ferulic acid
Grape (Vitis vinifera) seed extract
Green tea extract
HEDTA
Hydroquinone
Hydroquinone-beta-D-glucopyranoside
p-Hydroxyanisole
Lactoferrin
Lysine PCA
Melanin
Methyl gallate
Niacinamide ascorbate
Nordihydroguaiaretic acid
Oat (Avena sativa) extract
Oryzanol
Pentasodium pentetate
Pentetic acid
Propyl gallate
Retinyl palmitate polypeptide
Rosemary (Rosmarinus officinalis) extract
Saccharomyces lysate extract
Sage (Salvia officinalis) extract
Sodium ascorbate, S. erythorbate
Sodium metabisulfite
Sodium selenate, S. sulfite
Superoxide dismutase
Tea (Camillia sinensis) extract
Tetrasodium EDTA
Tocopherol

Functions

Asparagus officinalis extract
Astragalus sinicus extract
Avens (Geum rivale) extract
Avocado (Persea grausssima) extract
Balm mint (Melissa officinalis) extract, oil extract
Banana (Musa sapientum) extract
Barley (Hordeum vulgare) extract
Basil (Ocimum basilicum) extract
Bearberry (Arctostaphylos uva-ursi) extract
Bee pollen extract
Beet (Beta vulgaris) extract
Betaglucan
Bilberry (Vaccinium myrtillus) extract
Bioflavonoids
Birch (Betula alba) bark extract, leaf extract
Birch (Betula platyphylla japonica) extract
Bitter orange (Citrus aurantium amara) extract, flower extract, peel extract
Black cohosh (Cimicifuga racemosa) extract
Black currant (Ribes nigrum) extract
Black henna extract
Black poplar (Populus nigra) extract
Black walnut (Juglans nigra) extract
Bladderwrack (Fucus vesiculosus) extract
Borage (Borago officinalis) extract
Buckthorn (Frangula alnus) extract
Burdock (Arctium lappa) extract
Burdock (Arctium minus) root extract
Burnet extract
Butcherbroom (Ruscus aculeatus) extract
Cabbage rose (Rosa centifolia) extract
Calamus (Acorus calamus) extract
Calendula officinalis extract
Caper (Capparis spinosa) extract
Capsicum frutescens extract, C.f. oleoresin
Caraway (Carum carvi) extract
Carrageenan (Chondrus crispus)
Carrot (Daucus carota) extract
Carrot (Daucus carota sativa) oil
Cassia aunculata extract
Celandine (Chelidonium majus) extract
Chamomile (Anthemis nobilis) extract, oil
Chaparral (Larrea mexicana) extract
Cherry (Prunus spectosa) leaf extract
Cherry bark, C.b. extract
Chestnut (Castanea sativa) extract
Chinese hibiscus (Hibiscus rosa-sinensis) extract
Chlorella vulgaris extract
Cimicifuga foetida rhizome extract
Cinchona succirubra extract
Citroflavonoid, water soluble
Citrus bioflavonoid complex
Clary extract
Clove (Eugenia caryophyllus) extract
Clover (Trifolium pratense) extract
Cnidium officinale rhizome extract, C.o. water
Coffee (Coffea arabica) bean extract
Colloidal oatmeal
Coltsfoot (Tussilago farfara) leaf extract
Comfrey (Symphytum officinale) leaf extract
Condurango extract
Conetlower (Echinacea angustifolia) extract
Corallina officinalis
Corchorus olitorius extract
Coriander (Coriandrum sativum) extract
Corn (Zea mays) cob powder, silk extract
Corn poppy (Papaver rhoeas) extract
Cornflower (Centaurea cyanus) extract
Couch (Agropyron repens) grass
Crataegus monogina extract
Crithmum maritimum extract
Cucumber (Cucumis sativus) extract
Cypress (Cupressus sempervirens) extract
Dandelion (Taraxacum officinale) extract
Date (Phoenix dactylifera) extract
Dead Sea Mud, Salts
Dog rose (Rosa canina) hips extract
Dyer's broom extract
Eleuthero ginseng (Acanthopanax semicosus) extract
Elm (Ulmus campestris) extract
Eucalyptus (Eucalyptus globulus) extract
Eucalyptus globulus oil
Eucommia ulmoides extract
Euphrasia officinalis extract
Evening primrose (Oenothera biennis) extract, oil
Everlasting (Helichrysum arenarium) extract
Fennel (Foeniculum vulgare) extract
Fenugreek extract
Fermented rice (Oryza sativa) extract
Fern (Dryopteris filix-Mas) extract
Fig (Ficus carica) extract
Fir needle extract
Fumitory (Fumaria officinalis) extract
Gardenia florida extract
Garlic (Allium sativum) extract
Gelidium cartilagineum
Gentian (Gentiana lutea) extract
Geranium maculatum extract
Ginger root extract
Ginkgo biloba extract
Ginseng (Panax ginseng) extract
Glycyrrhetinic acid
Glycyrrhizic acid
Glycyrrhizin, ammoniated
Golden seal (Hydrastis canadensis) root extract
Goldthread (Coptis japonica) extract
Guru kola extract
Grape (Vitis vinifera) distillate, extract
Grape (Vitis vinifera) leaf, seed extract
Grape skin extract
Grapefruit (Citrus grandis) peel extract
Green bean (Phaseolus lunatus) extract
Ground Ivy (Glechoma hederacea) extract
Guarana (Paullinia cupana) extract
Harpagophytum procumbens extract
Hayflower extract
Hazel (Corylus avellana) nut extract
Henna (Lawsonia inermis) extract
Hespendin, H. methyl chalcone
Hibiscus sabdariffa extract
Hibiscus synacus extract
High beta-glucan barley flour
Honeysuckle (Lonicera caprifolium) extract
Honeysuckle (Lonicera japonica) leaf extract
Hops (Humulus lupulus) extract
Horse chestnut (Aesculis hippocastanum) extract
Horseradish (Cochleana armoracia) extract
Horsetail extract
Houttuynia cordata extract
Hyacinth (Hyacinthus orientalis) extract
Hydrocotyl (Centella asiatica) extract
Hydrolyzed oat protein, soy flour
Hypericum perforatum extract
Hyssop (Hyssopus officinalis) extract
Indian cress (Tropaeolum majus) extract
Isodonis Japonicus extract
Ivy extract
Japanese angelica (Angelica acuuloba) extract, water
Japanese hawthorn (Crataegus cuneata) extract
Jasmine (Jasminum officinale) extract
Job's tears (Coix lacryma-jobi) extract
Jojoba (Buxus chinensis) seed powder
Juniperus communis extract
Kelp (Macrocystis pyrifera) extract
Kiwi (Actinidia chinensis) fruit extract, seed oil
Kola (Cola acuminata) extract
Krameria triandra extract
Lady's mantle (Alchemilla vulgaris) extract
Lady's Thistle (Silybum marianum) extract
Laurel (Laurus nobilis) extract
Lavender (Lavandula angustifolia) extract, water
Lemon (Citrus medica limonum) extract, juice extract, peel extract
Lemon bioflavonoids extract
Lemongrass (Cymbopogon schoenanthus) extract
Leopard flower (Belamcanda chinensis) root extract
Lettuce (Lactuca scariola sativa) extract
Licorice (Glycyrrhiza glabra) extract
Lilac (Syringa vulgaris) extract
Linden (Tilia argentea) extract
Linden (Tilia cordata) extract, water
Loquat (Eriobourya japonica) leaf extract
Maidenhair fern extract
Magnolia kobus extract
Mallow extract
Mandragora officinarum extract
Mannan
Marigold
Marine silts
Matricaria (Chamomilla recutita) extract
Meadowsweet (Soiraea ulmaria) extract
Melon (Cucumis melo) extract
MEA iodine
Mistletoe (Viscum album) extract
Mugwort (Anemisia princeps) extract, water
Mulberry (Morus alba) root extract
Mulberry (Morus bombysis) root extract
Mushroom extract
Myrrh (Commiphora myrrha) extract
Nasturtium extract
Neroli extract
Nettle (Urtica dioica) extract
Oak (Quercus) bark extract
Oak root extract
Oat (Avena sativa) bran, bran extract, flour, protein
Oat flower
Olive (Olea europa) extract, leaf extract
Onion (Allium cepa) extract
Orange blossom extract
Orange (Citrus aurantium dulcis) flower extract, peel extract
Pansy (Viola tricolor) extract
Papaya (Carica papaya) extract
Parsley (Carum petroselinum) extract
Passion flower (Passiflora laurifolia) fruit extract
Passionflower (Passiflora incarnata) extract
Pea (Pisum sativum) extract
Peach (Prunus persica) extract, leaf extract
Pelargonium capitatum extract
Pellitory (Parietaria officinalis) extract
Pennyroyal (Mentha pulegium) extract
Peony (Paeonia albatlora) extract
Peony (Paeonia obovata) root extract
Peppermint (Mentha piperita) extract, oil
Perilla ocymoides extract
Periwinkle (Vinca minori extract
PEG-80 jojoba acid/alcohol
PEG-120 jojoba acid/alcohol

Functions

Behenamidopropyldimethylamine behenate
Behenamine oxide
Behenoyl PG-trimonium chloride
Behenyl betaine
Benzyltrimonium hydrolyzed collagen
Canolamidopropyl betaine
Capramide DEA
Caprylic/capric/lauric triglyceride
Caprylyl pyrrolidone
Cassia auriculata extract
Cetamine oxide
Cetearalkonium chloride
Chitosan PCA
Citric acid
Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate
Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen
Cocamidopropyldimonium hydroxypropylhydrolyzed collagen
Cocamidopropyl ethyldimonium ethosulfate
Cocamidopropyl PG-dimonium chloride, C.P.c. phosphate
Coco-morpholine oxide
Coco/oleamidopropyl betaine
Cocodimonium hydroxypropyl hydrolyzed hair keratin
Cocodimonium hydroxypropyl hydrolyzed rice protein
Cocodimonium hydroxypropyl hydrolyzed silk
Cocodimonium hydroxypropyl hydrolyzed soy protein
Coconut alcohol
N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
Collagen phthalate
Dibehenyl/diarachidyl dimonium chloride
Dibehenyldimonium chloride
Dicetyldimonium chloride
Didecyldimonium chloride
Dihydroxyethyl cocamine oxide
Dihydroxyethyl dihydroxypropyl stearmonium chloride
Dihydroxyethyl tallow glycinate
Dihydroxyethyl tallowamine oxide
Dilauryl acetyl dimonium chloride
Dilinoleamidopropyl dimethylamine
Dimethyl hydrogenated tallowamine
Dimethyl lauramine, D.l. isostearate
Dimethyl myristamine, soyamine, stearamine
Dimethylamidopropylamine dimerate
Disodium hydrogenated cottonseed glyceride sulfosuccinate
Disodium laureth sulfosuccinate
Disodium lauroamphodiacetate
Distearyldimonium chloride
Ethyl ester of hydrolyzed keratin
N-Ethylether-bis-1,4-(N-isostearylamidopropyl-N,N-dimethyl ammonium chlo
Glutamic acid
Glyceryl collagenate
Glycine
Guar hydroxypropyltrimonium chloride
Henna (Lawsonia inermis) extract
Hydrogenated tallowamine oxide
Hydrogenated tallowtrimonium chloride
Hydrolyzed conchiolin protein
Hydrolyzed egg protein
Hydrolyzed extensin
Hydrolyzed fibronectin
Hydrolyzed fish protein
Hydrolyzed keratin
Hydrolyzed lactalbumin
Hydrolyzed milk protein
Hydrolyzed oats
Hydrolyzed reticulin
Hydrolyzed soy protein
Hydrolyzed sweet almond protein
Hydrolyzed wheat protein/PVP copolymer
Hydrolyzed wheat protein polysiloxane polymer
Hydroxycetyl hydroxyethyl dimonium chloride
Hydroxyproline
Hydroxypropyl chitosan
Hydroxypropyl guar hydroxypropyltrimonium chloride
Hydroxypropyl-bis-isostearyamidopropyldimonium chloride
Hydroxypropyl bis-stearyldimonium chloride
Hydroxypropyltrimonium gelatin
Hydroxypropyltrimonium hydrolyzed keratin
H.h. silk
Hydroxypropyltrimonium hydrolyzed wheat protein
Isopropyl hydroxybutyramide dimethicone copolyol
Isopropyl lanolate
Isostearamidopropyl betaine, L dimethylamine
Isostearamidopropyl dimethylamine gluconate
Isostearamidopropyl dimethylamine glycolate
Isostearamidopropyl dimethylamine lactate
Isostearamidopropyl ethyldimonium ethosulfate
Isostearamidopropyl laurylacetodimonium chloride
Isostearamidopropyl morpholine, l.m. lactate
Isostearamidopropyl morpholine oxide
Isostearamidopropyl PG-dimonium chloride
Isostearaminopropalkonium chloride
Isostearyl hydrolyzed animal protein
Isostearylamidopropyl dihydroxypropyl dimonium chloride
Lactoglobulin
Lauramidopropyl dimethylamine
Lauramidopropyl PG-dimonium chloride, I.P.c. phosphate
Lauramine oxide
Lauroampho PG-glycinate phosphate
Lauroyl hydrolyzed collagen, L.h. elastin
Lauroyl silk amino acids
Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride
Lauryl phosphate, L. pyrrolidone
Laryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein
Linoleamidopropyldimethylamine
Milk amino acids
Milk protein (Lactis proteinum)
Myristalkonium chloride
Myristamidopropyl betaine, M. dimethylamine
Myristimonium bromide
Oat (Avena sativa) protein
Oleamide
Oleamidopropyl betaine, O. dimethylamine
Oleamidopropyl dimethylamine hydrolyzed collagen
Oleamidopropylamine oxide
Oleamine
Oleamine oxide
Oleoyl sarcosine
Oleyl betaine
Oleyl dimethylamidopropyl ethonium ethosulfate
Palmitamidopropyl betaine
Palmitamidopropyl dimethylamine
Palmitamine, P. oxide
Panthenyl hydroxypropyl steardimonium chloride
PEG-2 milk solids
PEG-2 oleammonium chloride
PEG-3 lauramine oxide
PEG-5 stearyl ammonium lactate
PEG-15 cocomonium chloride
PEG-15 cocopolyamine
PEG-15 tallowmonium chloride
PEG-27
PEG-40
PEG-85 lanolin
PEG-7000
Polydimethicone copolyol
Polymethacrylamidopropyltrimonium chloride
Polyoxyethylene dihydroxypropyl linoleaminium chloride
Polyquaternium-2, -5, -6, -11, -16
Polyquaternium-17, -18, -24, -29, -44
Potassium dimethicone copolyol panthenyl phosphate
Potassium lauroyl collagen amino acids
Potassium lauroyl hydrolyzed soy protein
Potassium lauroyl wheat amino acids
Potassium stearoyl hydrolyzed collagen
PPG-5 lanolin alcohol ether
PPG-9 diethylmonium chloride
PPG-20 lanolin alcohol ether
Proline
Propylene glycol stearate
PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester
PVP/dimethylaminoethylmethacrylate copolymer
PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester
PVP/hydrolyzed wheat protein copolymer
Quaternium-22, -26, -33, -61, -62, -70, -80
Quaternium-76 hydrolyzed collagen
Rapeseedamidopropyl benzyldimonium chloride
Rapeseedamidopropyl epoxypropyl dimonium chloride
Rapeseedamidopropyl ethyldimonium ethosulfate
Rice peptide
Ricinoleamidopropyl-dimonium ethosulfate
Ricinoleamidopropyl betaine
Ricinoleamidopropyl dimethylamine lactate
Ricinoleamidopropyl ethyldimonium ethosulfate
Ricinoleamidopropyltrimonium chloride
Ricinoleamodopropyltrimonium ethosulfate
Silicone quaternium-3, -4
Silk amino acids
Sodium/TEA-lauroyl collagen amino acids
Sodium/TEA-lauroyl hydrolyzed keratin
Sodium/TEA-lauroyl keratin amino acids
Sodium citrate
Sodium cocoyl hydrolyzed soy protein
Sodium hydrogenated tallow dimethyl glycinate
Sodium lauroyl collagen, keratin amino acids
Sodium lauroyl wheat amino acids
Sodium stearoamphoacetate
Soluble keratin, wheat protein
Soyamide DEA
Soyamidopropyl benzyldimonium chloride
Soyamidopropyl betaine, S. dimethylamine
Soyamidopropyl ethyldimonium ethosulfate
Soyethyl morpholinium ethosulfate
Soyethyldimonium ethosulfate
Stearamide MEA
Stearamidoethyl diethylamine, ethanolamine
Stearamidopropyl benzyl dimonium chloride
Stearamidopropyl cetearyl dimonium tosylate
Stearamidopropyl dimethylamine stearate
Stearamidopropyl ethyldimonium ethosulfate
Stearamidopropyl morpholine lactate
Stearamidopropyl PG-dimonium chloride phosphate
Stearamine oxide
Steardimonium hydroxypropyl hydrolyzed collagen, keratin
Steardimonium panthenol
Stearoyl amidoethyl diethylamine
Steartrimonium bromide
Stearyl dimethicone
Tallowamidopropyl dimethylamine
Tetramethyl trihydroxy hexadecane
TEA-cocoyl hydrolyzed collagen
Trachea hydrolysate
Tricetylmonium chloride
Tridecyl salicylate
Triethonium hydrolyzed collagen ethosulfate
Wheat germamidopropalkonium chloride
Wheat germamidopropyl dimethylamine lactate

Functions

Rapeseed oil, ethoxylated high erucic acid
Ricinoleyl alcohol
Sodium ceteth-13-carboxylate
Sodium lignosulfonate, S. polymethacrylate
Sodium polynaphthalenesulfonate
Sorbitan oleate
Steareth-10
Tricontanyl PVP
Triisostearin PEG-6 esters
Trioctyldodecyl citrate

Emollient
Acetylated glycol stearate
Acetylated hydrogenated lanolin
Acetylated hydrogenated lard glyceride
Acetylated hydrogenated vegetable glyceride
Acetylated lanolin, A.L alcohol
Acetylated lard glyceride
Acetylated monoglycerides
Acetylated palm kernel glycerides
Aleurites moluccana ethyl ester
Allantoin
Aluminum/magnesium hydroxide stearate
AMP-isostearoyl hydrolyzed soy protein
Apricot (Prunus armeniaca) kernel oil
Arachidyl behenate
Argania spinosa oil
Avocado (Persea gratissima) oil, unsaponifiables
Avocado oil ethyl ester
Babassu (Orbignya oleifera) oil
Baryl isostearate, B. stearate
Behenamidopropyl dihydroxypropyl dimonium chloride
Behenoxy dimethicone
Behenyl alcohol, B. behenate
Behenyl erucate, B. isostearate
Benzyl laurate
Bladderwrack (Fucus vesiculosus) extract
Borage (Borago officinalis) seed oil
Borageamidopropyl phosphatidyl PG-dimonium chloride
Brain extract
Brazil nut (Bertholletia excelsa) oil
Butyl myristate, oleate, stearate
Butyloctanol
Butyloctyl oleate
C12-13, C12-16, C14-15 alcohols
C12-15 alcohols octanoate
C12-15 alkyl benzoate
di-C12-15 alkyl fumarate
C12-15 alkyl lactate
Camellia kissi oil
Tea (Camellia sinensis) oil
C10-30 cholesterol/lanosterol esters
Canola oil
Caprylic/capric triglyceride
Caprylic/capric triglyceride PEG-4 esters
Caprylic/capric/lauric triglyceride
Caprylic/capric/linoleic triglyceride
Caprylic/capric/oleic triglycerides
Caprylic/capric/stearic triglyceride
Caprylic/capric/succinic triglyceride
Capsicum frutescens oleoresin
Carrot (Daucus carota sativa) oil
Cashew (Anacardium occidentale) nut oil
Castor (Ricinus communis) oil
Cetearyl behenate, C. candelillate
Cetearyl isononanoate, C. octanoate
Cetearyl palmitate, C. stearate
Ceteth-10
Cetostearyl stearate
Cetyl C12-15 pareth-9 carboxylate
Cetyl acetate, C. alcohol
Cetyl esters, C. lactate
Cetyl myristate, C. octanoate
Cetyl oleate, C. palmitate
Cetyl PPG-2 isodeceth-7 carboxylate
Cetyl ricinoleate, C. stearate
Cetyl stearyl octanoate
Chia (Salvia hispanica) oil
Cholesteric esters
Cholesterol
Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
Cholesteryl hydroxystearate
Cholesteryl stearate
Choleth-24
C 18-70 Isoparaffin
C10-18, C12-18 triglycerides
C12-15 linear alcohols 2-ethylhexanoate
Cocamidopropyl PG-dimonium chloride
Cocoa (Theobroma cacao) butter
Coco-caprylate/caprate
Coco-rapeseedate
Coconut (Cocos nucifera) oil
Cocoyl hydrolyzed soy protein
Collagen pathalate
Colloidal oatmeal
Comfrey (Symphytum officinale) leaf extract
Corn (Zea mays) oil
Corn poppy (Papaver rhoeas) extract
Cottonseed (Gossypium) oil
Cuttlefish extract
Cyclomethicone
Deceth-4 phosphate
Decyl oleate
Decyltetradecanol
Dialkyldimethylpolysiloxane
Dibutyl sebacate
Dicapryl adipate
Dicaprylyl ether, D. maleate
Diethylene glycol diisononanoate
Diethylene glycol dioctanoate
bis-Diglyceryl/caprylate/caprate/isostearate/hydroxystearate/adipate
bis-Diglyceryl/caprylate/caprate/isosteareth/stearate/hydroxystearate/adipate
Dihydroabietyl behenate
Dihydroxyethyl tallowamine oleate
Diisobutyl adipate
Diisocetyl adipate, dodecanedioate
Diisodecyl adipate
Diisopropyl adipate, dimer dilinoleate
Diisopropyl sebacate
Diisostearoyl trimethylolpropane siloxy silicate
Diisostearyl adipate
Diisostearyl dimer dilinoleate
Diisostearyl fumarate, D. malate
Dilinoleic acid
Dimethicone
Dimethicone copolyol
Dimethicone copolyol acetate, D.c. almondate
Dimethicone copolyol isostearate, D.c. lactate
Dimethicone copolyol methyl ether
Dimethicone copolyol phthalate
Dimethicone propylethylenediamine behenate
Dimethiconol stearate
Dimethyl lauramine oleate
Dioctyl adipate
Dioctyl dimer dilinoleate
Dioctylcyclohexane
Dioctyldodecyl dimer dilinoleate
Dioctyldodecyl dodecanedioate
Dioctyl malate, D. sebacate, succinate
Dipentaerythritol fatty acid ester
Dipentaerythrityl hexacaprylate/hexacaprate
Dipentaerythrityl hexahydroxystearate/isostearate
Distearyldimethylamine dilinoleate
Ditridecyl adipate
Dog rose (Rosa canina) hips oil
Egg (Ovum) yolk extract
Emu (Dromiceius) oil
Erucyl erucate
Ethyl avocadate
Ethylhexyl isopalmitate

Functions

Phytantriol
Pistachio (Pistacia vera) nut oil
Placental enzymes
Pollen extract
Poloxamer 105 benzoate
Poloxamer 182 dibenzoate
Polybutene
Polydecene
Polydimethicone copolyol
Polyethylene glycol
Polyglyceryl-2 diisostearate, P. tetraisostearate
Polyglyceryl-2 triisostearate
Polyglyceryl-3 diisostearate, P. oleate
Polyglyceryl-3 stearate
Polyglyceryl-6 dioleate
Polyglyceryl-10 decaoleate, P. decastearate
Polyglyceryl-10 tetraoleate
Polyisobutene
Polyisobutene/isohexapentacontahectane
Polyisobutene/isooctahexacontane
Polyisobutene/isopentacontaoctane
Polyisoprene
Polyoxyethylene polyoxypropylene glycol
Polyquaternium-2
Polysiloxane polyalkylene copolymer
Polysorbate 40
Potassium dimethicone copolyol phosphate
PPG-2-buteth-3
PPG-2 lanolin alcohol ether
PPG-2 myristyl ether propionate
PPG-3 hydrogenated castor oil
PPG-3 myristyl ether
PPG-5-buteth-7
PPG-5-laureth-5
PPG-5 butyl ether
PPG-5 lanolin wax
PPG-5 pentaerythrityl ether
PPG-7-buteth-10
PPG-8/SMDI copolymer
PPG-9
PPG-9-buteth-12
PPG-9 butyl ether
PPG-10 butanediol, P. cetyl ether
PPG-10 methyl glucose ether
PPG-10 oleyl ether
PPG-11 stearyl ether
PPG-12-buteth-16
PPG-12-PEG-50 lanolin
PPG-12-PEG-65 lanolin oil
PPG-12/SMDI Copolymer
PPG-14 butyl ether
PPG-15 butyl ether, P. stearyl ether
PPG-15 stearyl ether benzoate
PPG-16 butyl ether
PPG-18 butyl ether
PPG-20
PPG-20-buteth-30
PPG-20 cetyl ether
PPG-24-glycereth-24
PPG-26
PPG-27 glyceryl ether
PPG-28-buteth-35
PPG-30
PPG-30 cetyl ether
PPG-40 butyl ether
PPG-50 cetyl ether, P. oleyl ether
PPG-51/SMDI Copolymer
PPG-53 butyl ether
Propylene glycol ceteth-3 acetate
Propylene glycol dicaprylate
Propylene glycol dicaprylate/dicaprate
Propylene glycol diisostearate, P.g. dioctanoate
Propylene glycol dipelargonate
Propylene glycol isoceteth-3 acetate
Propylene glycol isostearate, P.g. laurate
Propylene glycol myristate
Propylene glycol myristyl ether acetate
Propylene glycol stearate, SE
Pumpkin (Cucurbita pepo) seed oil
Quinoa (Chenopodium quinoa) oil
Rapeseed (Brassica campestris) oil
Rice (Oryza sativa) bran oil, bran wax
Rice fatty acid
Safflower (Carthamus tinctorius) oil
Salmon (Salmo) egg extract
Sesame (Sesamum indicum) oil
Shark liver oil
Shea butter (Butyrospermum parkii)
Shea butter (Butyrospermum parkii) extract
Shea butter, ethoxylated
Shorea stenoptera butter
Silybum marianum ethyl ester
Sitostearyl acetate
Skin lipids
Slippery elm extract
Sodium C8-16 isoalkylsuccinyl lactoglobulin sulfonate
Sodium carboxymethyl beta-glucan
Sodium ceteth-13-carboxylate
Sodium dimethicone copolyol acetyl methyltaurate
Sodium glyceryl oleate phosphate
Sodium hyaluronate, S. polymethacrylate
Sorbeth-20
Sorbitan isostearate, S. palmitate
Sorbitan sesquioleate, S. sesquistearate
Sorbitan trioleate
Soybean (Glycine soja) oil
Spermaceti
Sphingolipids
Squalene
Stearamidopropyl cetearyl dimonium tosylate
Steareth-4 stearate
Stearic acid, S. hydrazide
Stearoxy dimethicone

Functions

Lauramidopropyl dimethylamine
Lauramidopropyl PG-dimonium chloride
Laureth-1 -2 -3 -4 -5
Laureth-2-octanoate
Laureth-3 phosphate
Laureth-4 carboxylic acid
Laureth-5 carboxylic acid
Laureth-6 -7 -9 -11 -12
Laureth-11 carboxylic acid
Laureth-16 -20 -23 -25 -30
Lauryl PCA
Laurylmethicone copolyol
Lecithin
Linoleamidopropyl PG-dimonium chloride phosphate
Lithium stearate
Magnesium sulfate hepta-hydrate
Maleated soybean oil
Methoxy PEG-17/dodecyl glycol copolymer
Methyl gluceth-20 distearate
Methyl glucose dioleate, M. g. sesquiisostearate
Methyl glucose sesquistearate
MEA-laureth sulfate
Myreth-3 -4 -7
Myreth-3 myristate
Myristamidopropyl dimethylamine
Nonoxynol-1 -2 -4 -5 -6 -7
Nonoxynol-8 -9 -10 -11 -12 -13
Nonoxynol-14 -15 -18 -20 -30 -40 -50
Nonyl nonoxynol-5 -10
Oat (Avena sativa) flour
Octoxynol-1 -3 -5 -8 -10
Octoxynol 16, 30, 40
2-Octyl dodecyl alcohol
Octyldodecanol
Octyldodeceth-20 -25
Oleamide DEA
Oleamidopropyl dimethylamine
Oleamine oxide
Oleic acid
Oleth-2 -3 -4 -5 -6 -7 -8 -9
Oleth-10 -12 -15 -20 -23
Oleth-25 -30 -40 -50
Oleth 13
Oleth-2 phosphate
Oleth-3 phosphate
Oleth-5 phosphate
Oleth-10 phosphate
Oleth-20 phosphate
Palm acid
Palmitamidopropyl dimethylamine
Palmitic acid
PEG-2 cocamine, P. distearate
PEG-2 hydrogenated tallow amine
PEG-2 laurate, P. laurate SE
PEG-2 oleamine, P. oleate
PEG-2 soyamine, P. stearamine
PEG-2 stearate, P. stearate SE
PEG-3 cocamide
PEG-3 C12-C18 alcohols
PEG-3 glyceryl isostearate
PEG-3 glyceryl triisostearate
PEG-3 glyceryl tristearate
PEG-3 lanolate, P. sorbitan oleate
PEG-3 stearate
PEG-4 dioleate, P. diisostearate
PEG-4 dilaurate, P. distearate
PEG-4 glyceryl distearate
PEG-4 laurate, P. oleate
PEG-4 stearate
PEG-4 stearyl stearate
PEG-4 tallate
PEG-5 castor oil, P. cocamine
PEG-5 C12-C18 alcohols
PEG-5 glyceryl isostearate
PEG-5 glyceryl sesquioleate
PEG-5 glyceryl stearate
PEG-5 glyceryl triisostearate
PEG-5 lanolate, P. oleamine
PEG-5 soy sterol, P. soyamine
PEG-5 stearamine, P. stearate
PEG-5 tallow amine
PEG-6 caprie/caprylic glycerides
PEG-6 cocamide
PEG-6 C12-14 ether
PEG-6 dilaurate, P. dioleate
PEG-6 distearate, P. isostearate
PEG-6 lauramide, P. laurate
PEG-6 oleate, P. palmitate
PEG-6 sorbitan beeswax
PEG-6 sorbitan laurate
PEG-6 sorbitan oleate
PEG-6 sorbitan stearate
PEG-6 stearate
PEG-6-32
PEG-6-32 stearate
PEG-7 glyceryl cocoate
PEG-7 hydrogenated castor oil
PEG-7 oleate
PEG-7,5 tallowamine
PEG-8
PEG-8 beeswax, P. castor oil
PEG-8 C12-14 ether
PEG-8 dilaurate, P. dioleate
PEG-8 distearate
PEG-8 glyceryl laurate
PEG-8 laurate, P. oleate
PEG-8, P. tallate
PEG-9 castor oil
PEG-9 diisostearate
PEG-9 dioleate, P. distearate
PEG-9 laurate, P. oleate
PEG-9 stearate
PEG-10 castor oil, P. cocamine
PEG-10 coconut oil esters
PEG-10 C12-18 alcohols
PEG-10 dioleate
PEG-10 glyceryl isostearate
PEG-10 hydrogenated castor oil
PEG-10 hydrogenated castor oil triisostearate
PEG-10 lanolate
PEG-10 polyglyceryl-2 laurate
PEG-10 sorbitan laurate
PEG-10 soy sterol, P. stearamine
PEG-10 stearate
PEG-11 babassu glycerides
PEG-11 castor oil
PEG-12 dilaurate, P. dioleate
PEG-12 distearate
PEG-12 glyceryl dioleate
PEG-12 laurate, P. oleate
PEG-12 stearate, P. tallate
PEG-14 avocado glycerides
PEG-15 castor oil
PEG-15 cocamine
PEG-15 glyceryl isostearate
PEG-15 glyceryl laurate
PEG-15 glyceryl ricinoleate
PEG-15 oleamine, P. oleate
PEG-15, P. stearamine
PEG-15 tallow amine
PEG-15 tallow polyamine
PEG-16
PEG-16 hydrogenated castor oil
PEG-16 soy sterol
PEG-18 stearate
PEG-20 almond glycerides
PEG-20 castor oil, P. dilaurate
PEG-20 dioleate, P. distearate
PEG-20 glyceryl laurate
PEG-20 glyceryl oleate
PEG-20 glyceryl stearate
PEG-20 glyceryl triisostearate
PEG-20 glyceryl tristearate
PEG-20 hydrogenated castor oil
PEG-20 hydrogenated lanolin
PEG-20 lanolin, P. laurate
PEG-20 oleate
PEG-20 methyl glucose sesquistearate
PEG-20 sorbitan beeswax
PEG-20 sorbitan isostearate
PEG-20 sorbitan triisosterate
PEG-20 sorbitan trioleate
PEG-20 stearate, P. tallow amine
PEG-23 oleate, P. stearate
PEG-24 hydrogenated lanolin
PEG-25 castor oil
PEG-25 phytosterol
PEG-25 propylene glycol stearate
PEG-25 soy sterol, P. stearate
PEG-29 castor oil
PEG-30 castor oil
PEG-30 dipolyhydroxystearate
PEG-30 glyceryl cocoate
PEG-30 glyceryl isostearate
PEG-30 glyceryl laurate
PEG-30 glyceryl oleate
PEG-30 glyceryl stearate
PEG-30 hydrogenated castor oil
PEG-30 lanolin
PEG-30 sorbitan tetraoleate
PEG-32 dilaurate, P. dioleate
PEG-32 distearate, P. laurate
PEG-32 oleate, P. stearate
PEG-33 castor oil
PEG-35 castor oil, P. stearate
PEG-40 castor oil
PEG-40 glyceryl isostearate
PEG-40 glyceryl laurate
PEG-40 glyceryl triisostearate
PEG-40 hydrogenated castor oil
PEG-40 hydrogenated castor oil PCA isostearate
PEG-40 sorbitan diisostearate
PEG-40 sorbitan lanolate
PEG-40 sorbitan tetraoleate
PEG-40 stearate
PEG-40/dodecyl glycol copolymer
PEG-42 babassu glycerides
PEG-44 sorbitan laurate
PEG-45 palm kernel glycerides
PEG-45 safflower glycerides
PEG-50 lanolin, P. stearamine
PEG-50 stearate
PEG-60 almond glycerides
PEG-60 castor oil
PEG-60 corn glycerides
PEG-60 glyceryl triisostearate
PEG-60 hydrogenated castor oil
PEG-60 hydrogenated castor oil isostearate
PEG-60 hydrogenated castor oil triisostearate
PEG-60 shea butter glycerides
PEG-60 sorbitan tetraoleate
PEG-70 mango glycerides
PEG-75
PEG-75 castor oil, P. dilaurate
PEG-75 dioleate, P. distearate
PEG-75 lanolin, P. laurate
PEG-75 oleate
PEG-75 shea butter glycerides
PEG-75 shorea butter glycerides
PEG-75 stearate
PEG-80 sorbitan laurate
PEG-90 stearate
PEG-100 castor oil
PEG-100 hydrogenated castor oil
PEG-100 lanolin, P. stearate
PEG-120 distearate
PEG-150 dilaurate, P. dioleate
PEG-150 distearate, P. lanolin
PEG-150 laurate, P. oleate
PEG-150 stearate
PEG-200 castor oil
PEG-200 glyceryl stearate
PEG-200 hydrogenated castor oil

Functions

Ligustrum lucidum extract
Lysimachia foenum-graecum extract
Melaleuca bracteata extract
Melaleuca hypericifolia extract
Melaleuca symphyocarp extract
Melaleuca uncifata extract
Melaleuca wilsonii extract
Nasturtium sinensis extract
Nelumbium speciosum extract
Paulownia imperialis extract
Rosemary (Rosmarinus officinalis) oil
Selinum spp. extract
Trichomonas japonica extract
Withania somniferum extract
Yuzu oil
Ziziphus jujuba extract

Exfoliant

Apricot (Prunus armeniaca) kernel powder
Glycolic acid
Jojoba (Buxus chinensis) seed powder
Lactic acid
Papain
PEG 11-Avocado Glycerdies
Willow (Salix alba) bark extract

Fiber

Corn (Zea mays) cob powder
Nylon-66
Oat (Avena sativa) bran, meal
Rayon

Film former

Acetylated lanolin
Acrylates/hydroxyesters acrylates copolymer
Acrylates/octylarylamide copolymer
Acrylates copolymer
Alkylated polyvinylpyrrolidone
Ammonium acrylates/acrylonitrogens copolymer
Betaglucan
Bladderwrack (Fucus vesiculosus) extract
Carboxymethylchitosan
N,O-Carboxymethylchitosonium
Chitosan lactate
Collagen
Collagen phthalate
Colloidal oatmeal
Desamido collagen
Diisostearoyl trimethylolpropane siloxy silicate
DMHF
Ethyl ester of hydrolyzed silk
Ethylcellulose
Gellan gum
Glycerin/diethylene glycol/adipate crosspolymer
High beta-glucan barley flour
Hydrolyzed collagen
Hydrolyzed keratin
Hydrolyzed oat protein
Hydrolyzed pea protein
Hydrolyzed reticulin
Hydrolyzed RNA
Hydrolyzed silk
Hydrolyzed soy protein
Hydrolyzed wheat protein
Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer
Hydrolyzed wheat protein/PVP copolymer
Hydroxypropylcellulose
Hydroxypropyltrimonium gelatin
Jojoba (Buxus chinensis) oil
Lactoglobolin
Myristoyl hydrolyzed collagen
Nitrocellulose
Oat (Avena sativa) extract, protein
Polyethylene, ionomer
Polyquaternium-6, -7, -11, -22, -39
Polyvinyl acetate, P. alcohol
Procollagen
PVM/MA decadiene crosspolymer
PVP/Dimethiconylacrylate/polycarbamyl/polyglycol ester
PVP/dimethylaminoethylmethacrylate copolymer
PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester
PVP/eicosene copolymer
PVP/hexadecene copolymer
PVP/hydrolyzed wheat protein copolymer
Rice peptide
Sericin
Shea butter (Butyrospermum parkii)
Shellac
Sodium C12-15 pareth-7 sulfonate
Sodium hyaluronate
Soluble collagen
Soluble keratin
Soluble wheat protein
TEA-acrylates/acrylonitrogens copolymer
Tosylamide/epoxy resin
Triacontanyl PVP
Triethonium hydrolyzed collagen ethosulfate
Wheat peptide

Fixative

Acrylates copolymer
Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
AMP-acrylates copolymer
Hydrolyzed zein
Methacryloi ethyl betaine/acrylates copolymer
Methyl rosinate
Polyquaternium-4, -10, -29
PPG-20 methyl glucose ether
Sodium polystyrene sulfonate

Flavor (aroma)

Benzaldehyde
Caraway (Carum carvi) oil
Cardamon (Elettaria cardamomum) oil
Cinnamon (Cinnamomum cassia) oil
Clove (Eugenia caryophyllus) oil
Ethyl vanillin
Eucalyptus globulus oil
Flavor (aroma)
Glutamic acid
Glycyrrhetinic acid
Glycyrrhizic acid
Glycyrrhizin, ammoniated
Methyl salicylate
Orange (Citrus aurantium dulcis) oil
Peppermint (Mentha piperita) oil
Rosemary (Rosmarinus officinalis) oil
Sodium glycyrrhizinate
Thymol
Vanillin

Foam booster

Alkyldimethylamine oxide
Babassuamidopropyl betaine
Babassuamidopropylamine oxide
Caprylyl pyrrolidone
Carrageenan (Chondrus crispus)
Cocamide DEA, C. MIPA
Cocamidopropyl betaine
Cocamidopropyl dimethylamine lactate
Cocamidopropyl hydroxysultaine
Coco-betaine
Coco/oleamidopropyl betaine
Cocoyl amido hydroxy sulfo betaine
Cocoyl monoethanolamide ethoxylate
DEA-hydrolyzed lecithin
Dimethyl lauramine
Disodium cocamido MEA-sulfosuccinate
Disodium cocoamphodiacetate
Disodium lauramido MEA-sulfosuccinate
Disodium laureth sulfosuccinate
Lauramide MIPA
Lauramidopropyl betaine
Lauryl betaine
Myristamidopropyl dimethylamine dimethicone copolyol phosphate
Myristamine oxide
Octyldodecyl benzoate
Oleamide DEA, O. MIPA
Oleyl betaine
Palm kernelamide DEA
PEG-3 lauramine oxide
PPG-15 stearyl ether benzoate
PEG-7000
Sodium cocoamphoacetate
Sodium cocoyl isethionate
Sodium laureth sulfate
Sodium lauroyl wheat amino acids
Sodium octoxynol-2 ethane sulfonate
Soyamidopropyl betaine
Tallowamide MEA

Foam stabilizer

Babassuamidopropylamine oxide
Behenamine oxide
Caprylyl pyrrolidone
Cetamine oxide
Cocamide DEA, C. MEA, C. MIPA
Cocamidopropyl betaine
Cocamidopropyl hydroxysultaine
Cocamidopropyl lauryl ether
Cocamidopropylamine oxide
Cocamine oxide
Dihydroxyethyl C12-15 alkoxypropylamine oxide
Dihydroxyethyl cocamine oxide
Dihydroxyethyl tallowamine oxide
Erucamidopropyl hydroxysultaine
Hydroxypropyl methylcellulose
Isostearamide DEA
Lauramide DEA, L. MEA
Lauramidopropylamine oxide
Lauramine oxide
Laureth-10
Lauric-linoleic DEA
Lauroyl-linoleoyl diethanolamide
Lauroyl-myristoyl diethanolamide
Lauryl pyrrolidone
Linoleamide MEA
Myristamide DEA, M. MEA
Oleamide MEA
Palmitamide MEA
PEG-3 lauramide
PEG-4 oleamide
Ricinoleamide MEA
Sesamide DEA
Wheat germamide DEA

Foamer

Ammonium laureth sulfate
Ammonium laureth-5 sulfate
Ammonium laureth-12 sulfate
Ammonium lauryl sulfate, A. L. sulfosuccinate
Ammonium myreth sulfate
Ammonium nonoxynol-4 sulfate
Capryl caprylylglucoside
Cetyl betaine
Cocamide
Cocamidopropyl dimethylamine
Cocamidopropyl dimethylamine lactate
DEA-laureth sulfate
DEA lauryl sulfate
Decyl glucoside
Disodium caproamphodiacetate
Disodium caproamphodipropionate
Disodium caprylamphodiacetate
Disodium cocoamphodipropionate
Disodium lauroamphodiacetate
Disodium lauroamphodipropionate
Disodium lauryl sulfosuccinate
Disodium oleamido MEA-sulfosuccinate

Functions

Oleyl dimethylamidopropyl ethonium ethosulfate
Palmitamidodecanediol
Panthenyl ethyl ether
Paulownia imperialis extract
Peach (Prunus persica) leaf extract
PEG-2 cocomonium chloride
PEG-120 jojoba acid/alcohol
PG-hydroxycellulose lauryldimonium chloride
PG-hydroxyethylcellulose cocodimonium chloride
PG-hydroxyethylcellulose lauryldimonium chloride
PG-hydroxyethylcellulose stearyldimonium chloride
Phenyl trimethicone
Phospholipids
Phytantriol
Polyoxyethylene polyoxypropylene glycol
Polypropylene glycol
Polyquaternium-4, -6, -7, -10
Polyquaternium-22, -28, -39
PPG-5-ceteth-10 phosphate
Propyltrimonium hydrolyzed collagen
Propyltrimonium hydrolyzed soy protein
Propyltrimonium hydrolyzed wheat protein
Quaternium-18, -75, -81, -82
Quaternium-79 hydrolyzed keratin
Quaternium-79 hydrolyzed silk
Sambucus nigra extract, oil
Sesamidopropalkonium chloride
Silicone quaternium-1,-8
Sodium cocoamphoacetate
Sodium cocoyl hydrolyzed collagen
Sodium polystyrene sulfonate
N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
Steapyrium chloride
Stearalkonium chloride
Stearamidopropyl dimethylamine
Steardimonium hydroxypropyl hydrolyzed wheat protein
Steartrimonium chloride
Steartrimonium hydroxyethyl hydrolyzed collagen
N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
Stenocalyx micalii extract
Sulfur
Tallowbenzyldimethylammonium chloride, hydrogenated
Tallowtrimonium chloride
Tea (Camellia sinensis) oil
TEA-cocoyl hydrolyzed soy protein
Thenoyl methionate
Trimethylsilylamodimethicone
Wheat amino acids

Hair set resin polymer

Acrylates/acrylamide copolymer
Acrylates/PVP copolymer
Acrylates/hydroxyesters acrylates copolymer
Acrylates/octylarylamide copolymer
AMP-acrylates copolymer
Butylester of PVM-MA copolymer
Carboxylated vinylacetate terpolymer
Diglycol/CHDM/isophthalates/SIP copolymer
Eclipta alba extract
Ethyl ester of PVM/MA copolymer
Hydroxypropyl chitosan
Isopropyl ester of PVM/MA copolymer
Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
Polymethacrylamidopropyltrimonium chloride
Polypropylene glycol oligosuccinate
PVP
PVP/dimethylaminoethylmethacrylate copolymer
PVP/Polycarbamyl polyglycol ester
PVP/VA copolymer
PVP/VA-vinyl propionate copolymer
Sodium polyacrylate
VA/butyl maleate/isobornyl acrylate copolymer
VA/crotonates/vinyl neodecanoate copolymer
VA/crotonates/vinyl propionate copolymer
VA/crotonates copolymer
Vinyl caprolactam/PVP/dimethylaminoethylmethacrylate copolymer

Hair sheen

Maidenhair fern extract
Terabutoxypropyl methicone

Hair waving

Ammonium thioglycolate, A. thiolactate
Argania spinosa oil
L-cysteine HCL
Cystine
Diammonium dithiodiglycolate
Dilauryl thiodipropionate
Ethanolamine sulfite, E. thioglycolate
Ethanolamine thiolactate
Glyceryl thioglycolate
Hydroxymethyl dioxoazabicyclooctane
Jojoba esters
Monoethanolamine thiolactate
Shea butter, ethoxylated
Sodium thioglycolate
Thioglycerin
Thioglycolic acid
Thiolactic acid

Humectant

Acetamide MEA
Acetyl monoethanolamine
6-(N-Acetylamino)-4-oxyhexyltrimonium chloride
Adenosine phosphate
Ammonium lactate
Atelocollagen
Calcium pantothenate
Calcium stearoyl lactylate
Carboxymethyl chitin
Carboxymethyl chitosan succinamide
Chitosan PCA
Cholesteryl hydroxystearate
Collagen amino-polysiloxane hydrolyzate
Colloidal oatmeal
Copper PCA methylsilanol
Dimethicone copolyol laurate
Dipotassium glycyrrhizinate
Ethyl ester of hydrolyzed silk
Fatty quaternary amine chloride complex
Glucose glutamate
Glycereth-1,5-lactate
Glycereth-7, -12, -26
Glycerin
Honey extract
Hydrogenated passion fruit oil
Hydrolyzed casein
Hydrolyzed fibronectin
Hydrolyzed glycosaminoglycans
Hydrolyzed oat protein
Hydrolyzed silk
Hydrolyzed soy protein
Hydroxypropyl chitosan
Hydroxypropyltrimonium hydrolyzed casein
Hydroxypropyltrimonium hydrolyzed silk
Hydroxypropyltrimonium hydrolyzed soy protein
Hydroxypropyltrimonium hydrolyzed wheat protein
Keratin amino acids
Lactamide DGA, MEA
Lactamidopropyl trimonium chloride
Lactic acid
Lactose
Lauroyl lysine
Mallitol
Mannitol
Methyl gluceth-10, -20
Natto gum
Oat (Avena sativa) extract, protein
Panthenol
Pantheayl ethyl ether
PCA
PEG-4
Polyamino sugar condensate
Potassium lactate
Propylene glycol
Propyltrimonium hydrolyzed collagen
Propyltrimonium hydrolyzed soy protein
Propyltrimonium hydrolyzed wheat protein
Quaternium-22
Rice (Oryza sativa) germ oil
Sea Salts (Maris sal)
Shea butter (Butyrospermum parkii)
Silk powder
Sodium behenoyl lactylate
Sodium caproyl lactylate
Sodium cocoyl lactylate
Sodium hyaluronate
Sodium isostearoyl lactylate
Sodium lactate, S. lauroyl lactylate, S. PCA
Sodium polyglutamate
Sodium stearoyl lactylate
Sorbitan laurate
Sorbitan sesquiisostearate
Sorbitol
Sphingolipids
TEA-PCA
Urea

Hydrotrope

Ammonium cumenesulfonate
Ammonium xylenesulfonate
Cetamine oxide
Cocamidopropylamine oxide
Lauramine oxide
Potassium toluenesulfonate
PPG-2-isodeceth-4, -6, -9, -12
Sodium cumene sulfonate
Sodium laureth-13-carboxylate
Sodium toluene sulfonate
Sodium xylene sulfonate
Trideceth-19-carboxylic acid

Intermediate

Caprylic acid
Deceth-3
Diethyl succinate
Dimethylaminopropylamine
DM hydantoin
Dodecylbenzene sulfonic acid
Ethylene dichloride
4-Fluoro 3-nitro aniline
Lauramine
Methyl benzoate, M. cocoate
Methyl isostearate, M. laurate
Methyl myristate, M. palmitate
Oleic acid
Ricinoleic acid
Tall oil acid
Tallow acid

Lathering agent

Ammonium cocoyl sarcosinate
Ammonium C12-15 alkyl sulfate
Ammonium lauroyl sarcosinate
Cocamide MEA ethoxylate
Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen
Lauroyl sarcosine
Myristoyl sarcosine
Sodium cocoyl sarcosinate
Sodium lauroyl sarcosinate
Sodium methyl cocoyl taurate
Sodium myristoyl sarcosinate
TEA-cocoyl sarcosinate
TEA-lauroyl sarcosinate

Lubricant

Aluminum salt octenyl succinate
Amodimethicone

Functions

Isohexadecane
Lanosterol
Octyl pelargonate, O. stearate
Polyisobutene
Polyisobutene/isohexapentacontahectane
Polyisobutene/isooctahexacontane
Silica silylate
Trihydroxypalmitamidohydroxy propyl myristyl ether
Trimethylsiloxysilicate

Moisturizer

Acetamidopropyl trimonium chloride
Adenosine triphosphate
Aesculus chinensis extract
Algae (Ascophyllum nodosum) extract
Algae extract
Aloe barbadensis, A. b. extract
Ammonium lactate
Amniotic fluid
Apple (Pyrus malus) extract
Apricot (Prunus armeniaca) kernel oil
Arginine PCA
Atelocollagen
Artemisia apiacea extract
Astrocaryum murumuru extract
Avocado (Persea gratissima) extract, oil
Avocado (Persea gratissima) unsaponifiables
Babassu (Orbignya oleifera) oil
Bactris gasipaes extract
Beincasa hispids extract
Betaglucan
Betaine
Borage (Borago officinalis) seed oil
Brazil nut (Bertholetia excelsa) extract, oil
C10-30 cholesterol/lanosterol esters
Calcium pantothenate
Calcium protein complex
Caprylic/capric triglyceride
Caprylic/capric/lauric triglyceride
Caprylic/capric/linoleic triglyceride
Caprylic/capric/oleic triglycerides
Cashew (Anacardium occidentale) nut oil
Celastrus paniculata extract
Ceramide 33 (liquid soy extract)
Chia (Salvia hispanica) oil
Chinese hibiscus (Hibiscus rosa-sinensis) extract
Chitin
Chitosan, C. PCA
Cholestene esters
Cholesterol
Cholesteryl/behenyl/octyldodecyl lauroyl glutamate
Cocodimonium hydroxypropyl hydrolyzed collagen
Cocodimonium hydroxypropyl hydrolyzed silk
Cocodimonium hydroxypropyl hydrolyzed wheat protein
Cocodimonium hydroxypropyl silk amino acids
Collagen
Collagen amino acids, C. phthalate
Copper aspartate, C. protein complex
Corn (Zea mays) oil
Cottonseed (Gossypium) oil
Crataegus cuneata extract
Cucumber (Cucumis sativus) extract
Desamido collagen
Dicaprylyl maleate
Diisocetyl dodecanedioate
Diisostearyl adipate
Dimethyl hyaluronate
Dimethylsilanol hyaluronate
Dioctyldodecyl dimer dilinoleate
Dioctyldodecyl dodecanedioate
Dipentaerythritol fatty acid ester
Dog rose (Rosa canina) hips extract
Dog rose (Rosa canina) seed extract
Echites glauca extract
Elastin amino acids
Emblica officinalis extract
Ethyl minkate
Eugenia jamboiana extract
Evening primrose (Oenothera biennis) extract, oil
Galla sinensis extract
Ganoderma lucidum oil
Ginseng (Panax ginseng) extract
Gleditsia sinensis extract
Glycereth-12
Glyceryl alginate, G. collagenate
Glyceryl polymethacrylate
Glycolic acid
Glycolipids
Glycosaminoglycans
Glycosphingolipids
Gnetum amazonicum extract
Grape (Vitis vinifera) seed oil
Hazel (Corylus avellana) nut oil
Honey extract
Hyaluronic acid
Hybrid safflower (Carthamus tinctorius) oil
Hydrogenated castor oil
Hydrogenated coconut oil
Hydrogenated cottonseed oil
Hydrogenated lecithin
Hydrogenated palm oil
Hydrogenated polyisobutene
Hydrogenated soybean oil
Hydrogenated soybean/cottonseed oil
Hydrogenated vegetable oil
Hydrolyzed carbolipoprotein
Hydrolyzed collagen
Hydrolyzed elastin
Hydrolyzed fibronectin
Hydrolyzed glycosaminoglycans
Hydrolyzed keratin
Hydrolyzed milk protein
Hydrolyzed oats
Hydrolyzed pea protein
Hydrolyzed placental protein
Hydrolyzed rice protein
Hydrolyzed transgenic collagen
Hydrolyzed serum protein
Hydrolyzed silk
Hydrolyzed sweet almond protein
Hydrolyzed wheat protein
Hydroxyethyl chitosan
Inositol
Isodecyl salicylate
Isostearyl hydrolyzed animal protein
Jojoba (Buxus chinensis) oil
Jojoba esters
Keratin amino acids
Kiwi (Actinidia chinensis) fruit extract
Kola (Cola acuminata) extract
Kukui (Aleurites moluccana) nut oil
Lactamide DGA, L. MEA
Lactic acid
Lactobacillus/whey ferment
Lactococcus hydrolysate
Lactoyl methylsilanol elastinate
Lanolin alcohol
Lauryl PCA
Lecithin
Lesquerella fendleri oil
Liposomes
Lysine PCA
Macadamia ternifolia nut oil
Magnesium aspartate
Maltitol
Manganese aspartate
Mango (Mangifera indica) oil
Mannan
Marine polyaminosaccharide
Mauritella armata extract
Maximilliana regia extract
Meadowfoam (Limnanthes alba) seed oil
Melaleuca hypericifolia extract
Methylsilanol elastinate, M. mannuronate
Milk amino acids
Mineral oil (Paraffinum liquidum)
Molybdenum aspartate
Mouriri apiranga extract
Natto gum
Nelumbium speciosum extract
Neopentyl glycol dicaprate
Oat (Avena sativa) protein
Octyl hydroxystearate
Ophiopogon japonicus extract
Orange (Citrus aurantium dulcis) peel wax
Palmetto extract
Pantethine
Panthenyl ethyl ether
Paraffin
Partially hydrogenated soybean oil
Peanut (Arachis hypogaea) oil
Pecan (Carya illinoensis) oil
PEG-4, -6, -8, -12
PEG-70 mango glycerides
PEG-75 shea butter glycerides
PEG-75 shorea butter glycerides
PEG-100 stearate
Pentaerythrityl isostearate/caprate/caprylate/adipate
Pentaerythrityl stearate/caprate/caprylate/adipate
Pentylene glycol
Perfluoropolymethylisopropyl ether
Petrolatum
Petroleum wax
Pfaffia spp. extract
Pistachio (Pistacia vera) nut oil
Placental protein
Plankton extract
Polyamino sugar condensate
Polybutene
Polyunsaturated fatty acids
Potassium DNA, P. lactate, P. PCA
PPG-8/SMDI copolymer
PPG-20 methyl glucose ether distearate
Propylene glycol dicaprylate/dicaprate
Propylene glycol dioctanoate
Pumpkin (Cucurbita pepo) seed oil
Quinoa (Chenopodium quinoa) extract
Rapeseed (Brassica campestris) oil
Rehmannia chinensis extract
Rice (Oryza sativa) bran oil
Rose Water
Royal jelly extract
Saccharide isomerate
Saccharomyces lysate extract
Saccharomyces/soy protein ferment
Safflower (Carthamus unctorius) oil
Selenium aspartate, S. protein complex
Sericin
Serum albumin
Sesame (Sesamum indicum) oil
Shea butter (Butyrospermum parkii)
Shea butter (Butyrospermum parkii) extract
Shorea stenoptera butter
Silk amino acids
Sodium carboxymethyl beta-glucan
Sodium chondroitin sulfate
Sodium DNA, S. hyaluronate
Sodium lactate, S. PCA
Soluble collagen
Soluble transgenic elastin
Soybean (Glycine soja) oil
Spherical cellulose acetate
Spondias amara extract
Squalene
Stomach extract
Sunflower (Helianthus annuus) seed oil
Superoxide dismutase
Tissue extract
Tocopheryl acetate, T. linoleate
Tomato (Solanum lycopersicum) extract

Functions

PEG-150 lanolin
PEG-160M
PG-hydroxycellulose lauryldimonium chloride
PG-hydroxyethylcellulose cocodimonium chloride
PG-hydroxyethylcellulose stearyldimonium chloride
Polyethylene, ionomer
Polyethylene, micronized
Polyethylene, oxidized
Polyglyceryl-2 polyhydroxystearate
Polymethacrylamidopropyltrimonium chloride
Polyquaternium-6, -7, -10, -11, -22, -39
Polysilicone-8
Potassium alginate
Potassium lauroyl collagen amino acids
Potassium lauroyl hydrolyzed soy protein
Potassium lauroyl wheat amino acids
PPG-8/SMDI copolymer
PPG-12/SMDI copolymer
PPG-51/SMDI copolymer
PVM/MA decadiene crosspolymer
PVP/dimethylaminoethylmethacrylate copolymer
PVP/VA copolymer
Sodium cocoyl hydrolyzed wheat protein
Steardimonium hydroxypropyl hydrolyzed wheat protein
Steareth-2 phosphate
TEA-acrylates/acrylonitrogens copolymer
Tosylamide/epoxy resin
Tosylamide/formaldehyde resin
Trideceth-5, -6, -7, -8
VA/butyl maleate/isobornyl acrylate copolymer
VA/crotonates/vinyl neodecanoate copolymer
Vinyl caprolactam/PVP/dimethylaminoethylmethacrylate copolymer
Wheat (Triticum vulgare) protein
Xanthan gum

Powder
Acrylates copolymer, spherical powder
Attapulgite
Boron nitride
Calcium aluminum borosilicate
Calcium carbonate
Cellulose triacetate
Corn (Zea mays) cob powder, starch
Hydrogenated jojoba wax
Magnesium carbonate, M. myristate
Magnesium stearate
Mica
Microcrystalline cellulose
Nylon-6
Nylon powder
Oat (Avena sativa) starch
Polyamide 12
Polyethylene
Polymethyl methacrylate
Polymethylsilsesquioxane
PTFE
Silica
Silk powder
Spherical cellulose acetate
Talc
Tapioca dextrin
Zinc laurate

Powder, absorbent
Aluminum starch octenylsuccinate
Clays (white, yellow, red, green, pink)
Sorbitol
Tapioca

Preservative
Alcohol
Ascorbic acid
Ascorbyl palmitate
Benzalkonium chloride
Benzethonium chloride
Benzoic acid
Benzyl alcohol
Benzylparaben
5-Bromo-5-nitro-1,3-dioxane
2-Bromo-2-nitropropane-1,3-diol
Butylparaben
Calcium propionate
Cetrimonium bromide
Cetyl pyridinium chloride
Chloroxylenol
Chlorphenesin
o-Cymen-5-ol
Diazolidinyl urea
Dichlorobenzyl alcohol
Dichlorophene
Diiodomethyltolylsulfone
Dimethyl hydroxymethyl pyrazole
Dimethyl oxazolidine
Disodium EDTA
DMDM hydantoin
EDTA
Ervthorbic acid
7-Ethylbicyclooxazolidine
Ethylparaben
Fomistopsis officinalis oil
Formaldehyde
Glutaral
Glyceryl laurate
HEDTA
Hexamidine diisethionate
Hexetidine
Imidazolidinyl urea
Isobutylparaben
Isopropyl sorbate
Isopropylparaben
MDM hydantoin
Methenammonium chloride
Methyl paraben sodium
Methylchloroisothiazolinone
Methyldibromo glutaronitrile
Methylisothiazolinone
Methylparaben
Mushroom (Cordyceps sabolifera) extract
Myrtrimonium bromide
Pentasodium pentetate
Peracetic acid
Phenethyl alcohol
Phenol
Phenyl mercuric acetate
o-Phenylphenol
Polyaminopropyl biguanide
Polymethoxy bicyclic oxazolidine
Potassium sorbate
Propylparaben
Quaternium-15
Salicylic acid
Sodium benzoate, S. bisulfate
Sodium butylparaben, S. dehydroacetate
Sodium erythorbate, S. ethyl paraben
Sodium hydroxymethylglycinate
Sodium metabisulfite, S. methylparaben
Sodium o-phenylphenate
Sodium propionate, S. propylparaben
Sodium pyrithione, S. salicylate
Sodium sulfite
Sorbic acid
Tetrasodium EDTA
Thimerosal
Thymol
Tris (hydroxymethyl) nitromethane
Trisodium EDTA, T. HEDTA
Usnic acid
Zinc PCA

Propellant
Butane
Dimethyl ether
Hydrofluorocarbon 152a

Functions

Octamethyl cyclotetrasiloxane
Phenyl methicone, P. trimethicone
Polyether Trisiloxane
Polymethylsilsesquioxane
Polysilicone-8
Quaternium-80
Silicone quaternium-1, -8
Sodium-PG-propyl thiosulfate dimethicone
Stearoxymethicone/dimethicone copolymer
Trimethylsilylamodimethicone

Skin calming agent

Cornflower (Centaurea cyanus) extract
Fennel (Foeniculum vulgare) extract
Fenugreek extract
Linden (Tilia cordata) extract
Valerian (Valeriana officinalis) extract

Skin cleanser

Dog rose (Rosa canina) hips extract
Papaya (Carica papaya) extract
Peach (Prunus persica) extract
Rose (Rosa multiflora) extract
Willow (Salix alba) extract

Skin conditioner

Artemisia apiacea extract
Astrocaryum tucuma extract
Bactris gasipaes extract
Biotin
Bishydroxyethyl biscetyl malonamide
Bletia hyacinthina extract
Borage (Borago officinalis) seed oil
Borageamidopropyl phosphatidyl PG-dimonium chloride
Carbocysteine
Catalpa kaempfera extract
Coco phosphatidyl PG-dimonium chloride
Cocodimonium hydroxypropyl hydrolyzed keratin
Collagen amino acids
Cyclomethicone
Dimethicone, D. copolyol acetate
Emblica officinalis extract
Equisetum arvense extract
Ethyl ester of hydrolyzed animal protein
Evening primrose (Oenothera biennis) oil
Fomes fometanus extract
Fomistopsis officinalis oil
Gelatin
Ginseng hydroxypropyltrimonium chloride
butylene glycol
Glycolipids
Glycospningolipids
Gnetum amazonicum extract
Honey (Mel)
Hydrolyzed corbolipoprotein
Hydrolyzed elastin
Hydrolyzed pea protein
Hydrolyzed rice protein
Hydrolyzed serum protein
Hydrolyzed silk
Hydrolyzed soy protein
Hydrolyzed vegetable protein
Hydrolyzed wheat protein
Inga edulis extract
Kiwi (Actinidia chinensis) fruit extract
Laminaria japonica extract
Lecithin
Marsilea minuta extract
Nettle (Urtica dioica) extract
Palmitamidodecanediol
Pearls (Margarita margarita)
PEG-42 Ebiriko ceramides extract
Phenyl trimethicone
Phytantriol
Polygonum multiflorum extract
Polyquaternium-[illegible]

Potassium cocoyl hydrolyzed collagen
Retinyl palmitate polypeptide
Salvia miltiorrhiza extract
Silt
Sodium cocoyl hydrolyzed collagen
Soluble transgenic elastin
Stearimonium hydroxyethyl hydrolyzed collagen
Stearyl methicone

Skin healing

Calendula officinalis extract
Glycoproteins
Hydrocotyl (Centella asiatica) extract
Oat (Avena sativa) extract
Sandalwood (Santalum album) extract
Spearmint (Mentha viridis) extract

Skin lightening/whitening agent

Ascorbic acid polypeptide
Bearberry (Arctostaphylos uva-ursi) extract
Hydroquinone-beta-D-glucopyranoside
Lemon (Citrus medica limonum) peel extract
Pearls (Margarita margarita)

Skin protectant

Acetylmethionyl methylsilanol elastinate
Allantoin, A. aluminum hydroxide
Aloe barbadensis, A. b. extract
Aluminum starch octenylsuccinate
Anise (Pimpinella anisum) extract
Arnica montana extract
Artemisia apiacea extract
Ascorbyl methylsilanol pectinate
Astrocaryum tucuma extract
Bactris gasipaes extract
Betaglucan
Bishydroxyethyl biscetyl malonamide
Bletia hyacinthina extract
C 18-70 Isoparaffin
Calendula amurrensis extract
Carboxymethyl chitin
Carcinia cambogia extract
Carrot (Daucus carota) extract
Carrot (Daucus carota sativa) oil
Catalpa kaempfera extract
Chenopodium album extract
Chitosan
Chrysanthemum morifolium extract
Collagen
Corn poppy (Papaver rhoeas) extract
Crataegus cuneata extract
Crataegus monogina extract
Cypress (Cupressus sempervirens) extract
Dimethicone
Dimethiconol fluoroalcohol dilinoleic acid
Dimethiconol hydroxystearate, D. stearate
Dimethylsilanol hyaluronate
Echitea glauca extract
Embryo extract
Entada phaseoloides extract
Equisetum arvense extract
Euphotorium fortunei extract
Euterpe precatoria extract
Fenugreek extract
Fomistopsis officinalis oil, F. pinicola extract
Galla sinensis extract
Gentian (Gentiana lutea) extract
Gleditsia sinensis extract
Glyceryl ricinoleate
Glycolipids
Hierochloe odorata extract
Hyaluronic acid
Hydrogenated lecithin
Hydrolyzed lupine protein
Hydrolyzed milk protein
Hydrolyzed mushroom (Tricholoma matsutake) extract
Indian cress (Tropaeolum majus) extract

Isodecyl salicylate
Jojoba (Buxus chinensis) oil
Lady's Thistle (Silybum marianum) extract
Laminaria japonica extract
Ligusticum jeholense extract
Liposomes
Magnolia spp. extract
Mango kernel oil
Marsilea minuta extract
Melaleuca hypericifolia extract
Melaleuca uncinata extract
Melaleuca wilsonii extract
Methylsilanol tri PEG-8 glyceryl cocoate
Oat (Avena sativa) meal
Oyster (Ostrea) shell extract
Palmitamidodecanediol
Pearls (Margarita margarita)
Pentahydrosqualene
Perfluorodecalin
Perfluoropolymethylisopropyl ether
Petrolatum
PEG-8/SMDI copolymer
PEG-42 Ebiriko ceramides extract
Pfaffia spp. extract
Phospholipids
Plankton extract
Polygonum multiflorum extract
Pongamol
PPG-12/SMDI Copolymer
PPG-51/SMDI Copolymer
Propyltrimonium hydrolyzed collagen
Quinoa (Chenopodium quinoa) extract, oil
Salvia miltiorrhiza extract
Sambucus nigra extract
Shark liver oil
Shorea robusta extract
Sodium chondroitin sulfate
Soluble transgenic elastin
Stearimonium hydroxyethyl hydrolyzed collagen
Sterculia platanifolia extract
Superoxide dismutase
Trachea hydrolysate
Wheat (Triticum vulgare) germ extract, protein
White nettle (Lamium album) extract
Withania somniferum extract
Xanthoxylum bungeanum extract
Zinc oxide

Skin smoothing agent

Althea officinalis extract
Coltsfoot (Tussilago farfara) leaf extract
Comfrey (Symphytum officinale) leaf extract
Plantain (Plantago major) extract
Sericin

Skin softening

Clays (white, yellow, red, green, pink)
Cucumber (Cucumis sativus) extract
Kelp (Macrocystis pyrifera) extract
Peach (Prunus persica) extract
Phenethyl dimethicone

Skin soothing

Calendula officinalis extract
Cherry bark extract
Cucumber (Cucumis sativus) extract
Garlic (Allium sativum) extract
Hyssop (Hyssopus officinalis) extract
Jasmine (Jasminum officinale) extract
Kelp (Macrocystis pyrifera) extract
Mango kernel oil
Meadowsweet (Spiraea ulmaria) extract
Quince (Pyrus cydonia) seed extract
Slippery elm extract
Valerian (Valeriana officinalis) extract
Willow (Salix alba) extract
Witch hazel (Hamamelis virginiana) extract
Yarrow (Achillea millefolium) extract

Functions

Dipropylene glycol dibenzoate
Ethoxydiglycol
Ethyl acetate, E. lactate
Ethyl myristate, E. oleate
2-Ethylhexyl isostearate
Glycerin
Glycofurol
Heptane
Hexyl alcohol
Hexylene glycol
Isobutyl stearate
Isocetyl salicylate
Isodecyl benzoate, I. isononanoate
Isodecyl octanoate, I. oleate
Isododecane
Isoeicosane
Isohexadecane
Isopropyl alcohol, I. myristate
Isostearyl stearoyl stearate
Laureth-2 acetate
Methoxydiglycol
Methoxyisopropanol
Methyl alcohol
Methyl propanediol
Methylene chloride
MEK
MIBK
Morpholine
Octyl benzoate, O. isononanoate
Octyl laurate, O. palmitate
Octyldodecyl lactate
Olive oil PEG-6 esters
Peanut oil PEG-6 esters
Pentane
Petroleum distillates
PEG-6 methyl ether
PEG-12
PEG-20 hydrogenated castor oil
PEG-33 castor oil
PEG-50 glyceryl cocoate
Polyglyceryl-2 dioleate
Polyglyceryl-3 diisostearate
Polyoxyethylene glycol dibenzoate
Polypropylene glycol dibenzoate
PPG-2 myristyl ether propionate
PPG-3
PPG-20 lanolin alcohol ether
Propyl alcohol
Propylene carbonate
Propylene glycol
Propylene glycol dibenzoate
Propylene glycol methyl ether
Propylene glycol myristate
Pyridine
Sesame (Sesamum indicum) oil
Stearyl heptanoate
Toluene
Xylene

SPF booster
Borojoa sorbilis extract
Isohexadecyl salicylate
Styrene/acrylates copolymer
Titanium dioxide
Yeast (Saccheromyces cerevisiae) extract (Faex)

Stabilizer
Acrylates-VA crosspolymer
Acrylates/ceteth-20 methacrylates copolymer
Acrylates/steareth-20 methacrylate copolymer
Acrylates/vinyl isodecanoate crosspolymer
Alkyldimethylamine oxide
C10 polycarbamyl polyglycol ester
Calcium alginate
Cocamidopropyl dimethylamine lactate
Cocamine oxide
Colloidal silica sols
Cyclodextrin
Disodium EDTA
Gellan gum
Glyceryl diisostearate, G. stearate SE
Glyceryl mono-di-tri-caprylate
Hydrogenated coco-glycerides
Hydrogenated C12-18 triglycerides
Hydrogenated tallow glycerides
Hydrolyzed oat flour
Hydroxyoctacosanyl hydroxystearate
Karaya (Sterculia urens) gum
Laureth-3
Maltitol
Methylated cyclodextrin
Oleamide
PEG-40 stearate
PEG-40/dodecyl glycol copolymer
Perfluoropolymethylisopropyl ether
Polyethylene paste
PPG-5 lanolin wax
PPG-7-buteth-10
PPG-10 cetyl ether phosphate
Propylene carbonate, P. glycol alginate
PVM/MA decadiene crosspolymer
Sodium acrylates/vinyl isodecanoate crosspolymer
Sodium carbomer
Sorbitan laurate
Stearic hydrazide
2,2',4,4'-Tetrahydroxybenzophenone
Tricaprin
Tricaprylin
Trilaurin
Trimyristin
Tripalmitin
Tristearin

Stimulant
Capsicum frutescens extract
Eleuthero ginseng (Acanthopanax senticosus) extract
Guarana (Paullinia cupana) extract
Lactococcus hydrolysate
Methylsilanol elastinate
Methylsilanol hydroxyproline aspartate
TEA-hydroiodide
Tocopheryl nicotinate
Urocanic acid
Yeast (Saccheromyces cerevisiae) extract (Faex)
Zedoary (Curcuma zedoraria) oil
Zinc DNA

Sunscreen
Basil (Basilicum santum) oil extract
Basil (Ocimum basilicum) extract
Benzophenone-3 -4
3-Benzylidene camphor
Borojoa sorbilis extract
C12-15 alkyl benzoate
Coffee (Coffea arabica) bean extract
Ethyl salicylate
Glyceryl PABA
Homosalate
Hydroquinone-beta-D-glucopyranoside
Isoamyl p-methoxycinnamate
Isopropylbenzyl salicylate
Job's tears (Coix lacryma-jobi) extract
Menthyl anthranilate
Octyl dimethyl PABA, O. methoxycinnamate
Octyl salicylate, O. triazone
Oryzanol
Pansy (Viola tricolor) extract
PEG-25 PABA
Phenylbenzimidazole sulfonic acid
Rice (Oryza sativa) bran oil
TEA-salicylate
Titanium dioxide

Sunscreen UVB
Benzophenone-3
Eclipta alba extract
PEG-25 PABA
Steareth-100
Tridecyl salicylate

Superfatting agent
Linoleamide DEA
PEG-20 almond glycerides
PEG-60 lanolin
PEG-75 lanolin

Surfactant
Alkyl dimethyl betaine
Alkyldimethylamine oxide
Ammonium cocoyl sarcosinate
Ammonium C12-15 alkyl sulfate
Ammonium dimethicone copolyol sulfate
Ammonium laureth-5 sulfate
Ammonium laureth-12 sulfate
Ammonium laureth sulfate
Ammonium lauroyl sarcosinate
Ammonium lauryl sulfate, A l. sulfosuccinate
Ammonium myreth sulfate
Ammonium nonoxynol 4 sulfate
Azelamide MEA
C30-40 alcohol ethoxylate
C30-50 alcohol ethoxylate
C40-60 alcohol ethoxylate
Calcium dodecylbenzene sulfonate
Calcium laurate
Ceteareth-2 phosphate
Ceteareth-5 phosphate
Ceteareth-10 phosphate
Ceteth-25
Cetyl betaine, C. phosphate
Cocamide MEA ethoxylate
Cocamidopropyl betaine, potassium salt
Cocamidopropyl betaine ammonium salt
Cocamidopropyl hydroxy sultaine
Cocamidopropyl hydroxy sultaine, ammonium salt
Cocamidopropyl hydroxy sultaine, potassium salt
Cocamidopropylamine oxide
Coceth-7 carboxylic acid
Coco-glucoside
Cocoamphodiacetate lauryl-laureth sulfate
Cocoamphodiacetate lauryl sulfate
Cocoampnodiacetate trideceth sulfate
Coco phosphatidyl PG-dimonium chloride
N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
Cocoyl glutamic acid
Cocoyl hydrolyzed soy protein
Cocoyl hydroxyethyl imidazoline
C11-15 pareth-9, -12, -20, -30, -40
C12-13 pareth sulfate
C12-13 pareth-5 carboxylic acid
C12-15 pareth-12
C14-15 pareth-8 carboxylic acid
DEA-oleth-5-phosphate
DEA-oleth-20-phosphate
Deceth-3, -6, -8
Decyltetradeceth-25
Dicetearеth-10 phosphoric acid
Dimethicone copolyol
Dimethicone copolyol almondate, D. c. isostearate
Dimethicone copolyol laurate, D. c. olivate
Dimethicone copolyol phthalate
Dimethicone copolyolamine
Dimethicone propyl PG-betaine
Dioctyldodeceth-2 lauroyl glutamate
Dioctyldodeceth-5 lauroyl glutamate
Dioctyldodecyl lauroyl glutamate
Disodium capryloamphodiacetate
Disodium cocoamphodiacetate
Disodium hydrogenated tallow glutamate
Disodium laneth-5 sulfosuccinate
Disodium lauramido MEA-sulfosuccinate
Disodium laureth sulfosuccinate
Disodium oleamido MIPA-sulfosuccinate
Disodium oleamido PEG-2 sulfosuccinate
Disodium oleth-3 sulfosuccinate
Disodium ricinoleamido MEA-sulfosuccinate
Disodium tallamido MEA-sulfosuccinate
Distearеth-2 lauroyl glutamate

Functions

Dihydrogenated tallow phthalic acid amide
Distearyl phthalic acid amide
Guar (Cyanopsis tetragonoloba) gum
Hectorite
Hydroxypropylcellulose
Isobutylene/MA copolymer
Magnesium aluminum silicate
Methylcellulose
Pentasodium triphosphate
Polyethylene, P. micronized
Propylene glycol alginate
Quaternium-18 bentonite
Quaternium-18 hectorite
Sodium magnesium silicate
Sodium polynaphthalenesulfonate
Stearalkonium bentonite, S. hectorite
Steareth-10 allyl ether/acrylates copolymer
Tragacanth (Astragalus gummifer) gum
Tribehenin
Trihydroxystearin
Tromethamine magnesium aluminum silicate
Xanthan gum

Sweetener

Calcium saccharin
Fructose
Glycyrrhetinic acid
Glycyrrhizic acid
Glycyrrhizin, ammoniated
Hydrolyzed corn starch
Lactose
Maltitol
Mannitol
Saccharin
Sodium saccharin
Sorbitol
Sucrose

Tanning accelerator

Acetyl tyrosine
Carrot (Daucus carota) extract
Copper acetyl tyrosinate methylsilanol
Dihydroxyacetone
Disodium inulyl tyrosinate
Eclipta alba extract in white emulsion
Glucose tyrosinate

Thickener

Acrylates-VA crosspolymer
Acrylates/C10-C30 alkyl acrylate crosspolymer
Acrylates/ceteth-20 itaconate copolymer
Acrylates/ceteth-20 methacrylates copolymer
Acrylates/steareth-20 itaconate copolymer
Acrylates/steareth-20 methacrylate copolymer
Acrylates/steareth-50 acrylate copolymer
Acrylates/vinyl isodecanoate crosspolymer
Acrylic acid/acrylonitrogens copolymer
Algin
Aluminum/magnesium hydroxide stearate
Ammonium acrylates/acrylonitrogens copolymer
Ammonium alginate
Arachidyl alcohol
Behenic acid
Behenyl alcohol, B. behenate
Bentonite
C10 polycarbamyl polyglycol ester
C12-15 alcohols
C12-16 alcohols
C18-36 acid
Calcium alginate
Calcium carrageenan
Caprylic alcohol
Carbomer
Carboxymethyl hydroxyethylcellulose
Carrageenan (Chondrus crispus)
Cellulose, C. gum
Cetearyl alcohol, C. behenate
Cetearyl octanoate, C. stearate
Cetostearyl stearate
Cetyl alcohol
Cetyl hydroxyethylcellulose
Cetyl myristate, C. palmitate
Cocamide
Cocamide MEA, C. MIPA
Cocamidopropylamine oxide
Coco-betaine
Coco-rapeseedate
Cocoyloleamidopropyl betaine
Cocoyl amido hydroxy sulfo betaine
Cocoyl monoethanolamide ethoxylate
Colloidal silica sols
DEA-hydrolyzed lecithin
DEA-linoleate
DEA-oleth-3 phosphate
DEA oleth-10 phosphate
Decyl alcohol
Dextran
Dextrin
Dilaureth-10 phosphate
Dioleth-8 phosphate
DMHF
Ethoxylated fatty alcohol
Gellan gum
Glyceryl behenate, G. stearate
Glyceryl polymethacrylate
Guar (Cyanopsis tetragonoloba) gum
Guar hydroxypropyltrimonium chloride
Hectorite
Hexyl alcohol
Hydrated silica
Hydrogenated rapeseed oil
Hydrogenated starch hydrolysate
Hydrogenated tallowamide-60 myristyl glycol
Hydrolyzed oat flour
Hydrolyzed transgenic collagen
Hydroxyethylcellulose
Hydroxypropyl chitosan
Hydroxypropyl guar
Hydroxypropyl methylcellulose
Hydroxypropylcellulose
Isoceteth-10
Isostearamide DEA
Isostearamidopropylamine oxide
Isostearoamphopropionate
Jojoba wax
Karaya (Sterculia urens) gum
Lauramide DEA, L. MEA, L. MIPA
Lauramidopropyl betaine
Laureth-10
Lauric-linoleic DEA
Lauroyl-linoleoyl diethanolamide
Lauroyl-myristoyl diethanolamide
Lauryl alcohol, L. betaine
Linoleamide DEA, L. MEA
Linoleic acid
Linolenic acid
Locust bean (Ceratonia siliqua) gum
Magnesium aluminum silicate
MDM hydantoin
Methylcellulose
Montmorillonite
Myristamide DEA, M. MEA
Myristamine oxide
Myristyl alcohol
Octacosanyl stearate
Oleamide, O. DEA, O. MEA
Palmitamide MEA
Pectin
PEG-2 laurate
PEG-3 distearate, P. lauramide
PEG-3 lauramine oxide
PEG-4 diisostearate, P. oleamide
PEG-5M
PEG-6 beeswax
PEG-7 hydrogenated castor oil
PEG-8
PEG-8 dioleate, P. distearate
PEG-8 stearate
PEG-9M
PEG-12 beeswax
PEG-18 glyceryl oleate/cocoate
PEG-22M
PEG-28 glyceryl tallowate
PEG-40 jojoba oil
PEG-45M
PEG-50 tallow amide
PEG-55 propylene glycol oleate
PEG-75 stearate
PEG-90M
PEG-100 stearate
PEG-120 methyl glucose dioleate
PEG-150 distearate
PEG-150 pentaerythrityl tetrastearate
PEG-160M
PEG-200 glyceryl stearate
PEG-200 glyceryl tallowate
Pentaerythrityl tetrabehenate
Pentaerythrityl tetrastearate
Poloxamer 105, 124, 185, 237, 238, 338, 407
Polyacrylic acid
Polysorbate 20
Potassium alginate, P. chloride
Potassium oleate, P. stearate
PPG-5-ceteth-10 phosphate
Propylene glycol stearate
PVM/MA decadiene crosspolymer
PVP
Quaternium-18 bentonite
Quaternium-18 hectorite
Rapeseed oil, ethoxylated high erucic acid
Ricinoleamide MEA
Sesamide DEA
Sodium acrylates/vinyl isodecanoate crosspolymer
Sodium carbomer, S. carrageenan
Sodium ceteth-13-carboxylate
Sodium chloride
Sodium magnesium silicate, S. stearate
Sorbitan sesquiisostearate, S. tristearate
Soyamide DEA
Soyamidopropyl betaine
Starch polyacrylonitrile copolymer-potassium salt
Starch polyacrylonitrile copolymer-sodium salt
Stearalkonium bentonite, S. hectorite
Stearamide
Stearamide DEA, S. MEA, S. MEA-stearate
Stearamidopropyl dimethylamine lactate
Stearamine oxide

Claims:

1. A cosmetic composition, comprising:

a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and

a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.

2. A cosmetic composition for topical application, comprising:

a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and

a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.

3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.

4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.

5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a uv-absorbing agent.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents sunscreening agents and tanning accelerators and mixtures thereof.

14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, anitperspritants, antiseptics, antistatic agents, antringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, dipilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid component) is present in the amount of about 0.01 to 20 wt%.

21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer composition comprises a plurality of poly(acrylic acid) components randomly bonded to a poloxamer component.

24. The cosmetic composition of claim 1, wherein the aqueous-based medium is selected from the group consisting of water, salt solutions and water with water-miscible organic compound(s).

25. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and increase viscosity of the reversible viscosifying polymer network.

26. The cosmetic composition of claim 1, further comprising an additive selected to increase transition temperature and decrease viscosity of the reversible viscosifying polymer network.

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

35. Method of making an cosmetic composition, comprising:

dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;

initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;

mixing the reversibly gelling polymer compositions with a cosmetic agent which imparts a desired cosmetic effect to the composition.

36. The method of claim 36, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly viscosifying polymer network is present in an amount in the range of 0.01% 10%.

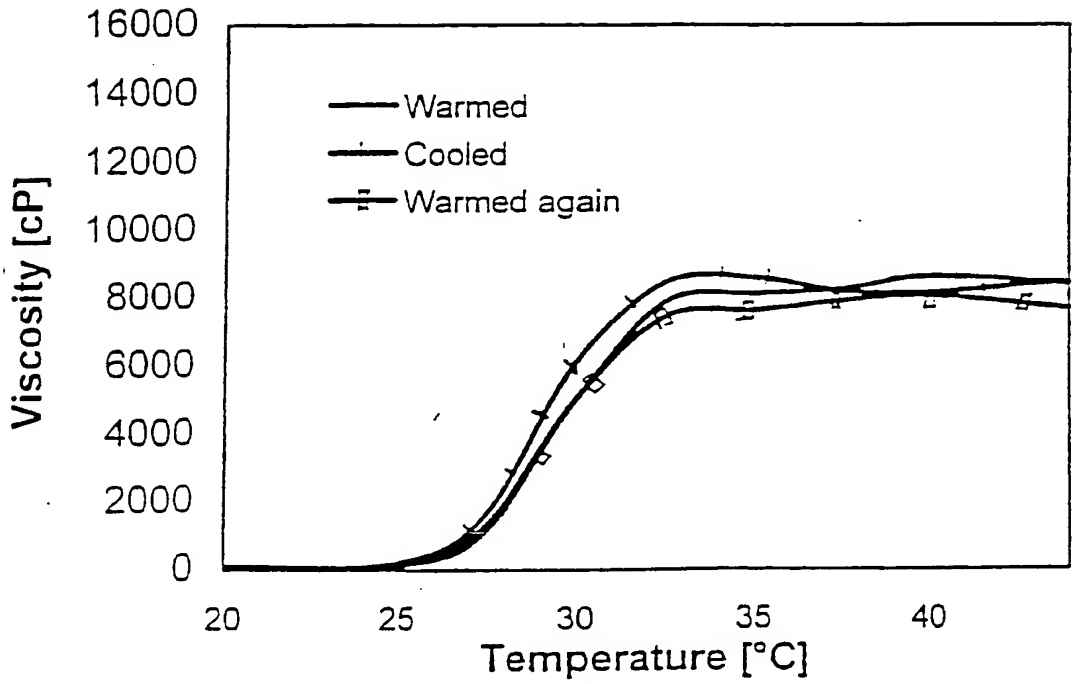

16000
14000
12000
10000
8000
6000
4000
2000
0
Viscosity [cP]
Warmed
Cooled
Warmed again
20
25
30
35
40
Temperature [°C]

Figure 2

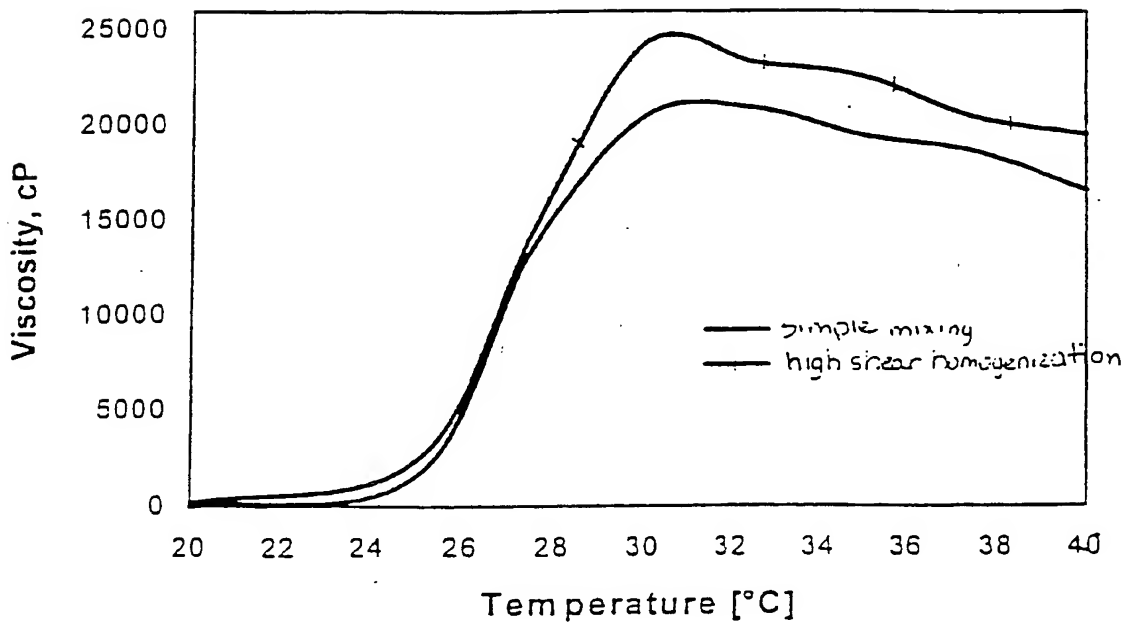

25000
20000
15000
10000
5000
0
Viscosity, cP
20
22
24
26
28
30
32
34
36
38
40
Temperature [°C]
simple mixing
high sheer homogenization

Figure 4

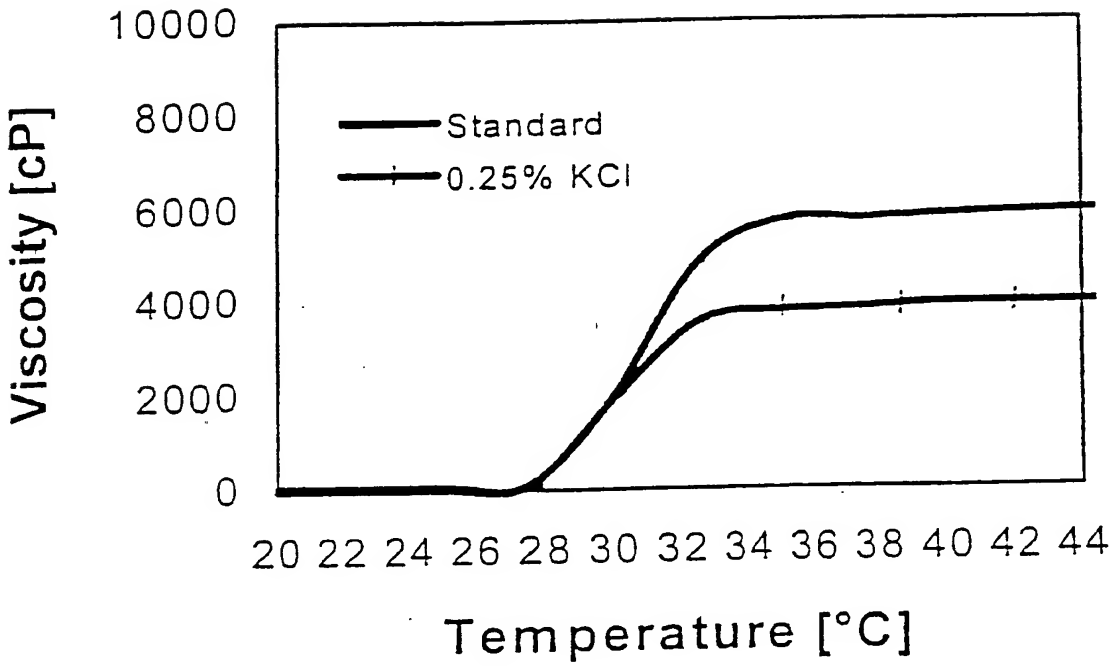

10000
8000
6000
4000
2000
0
Viscosity [cP]
Standard
0.25% KCl
20 22 24 26 28 30 32 34 36 38 40 42 44
Temperature [°C]

Figure 6

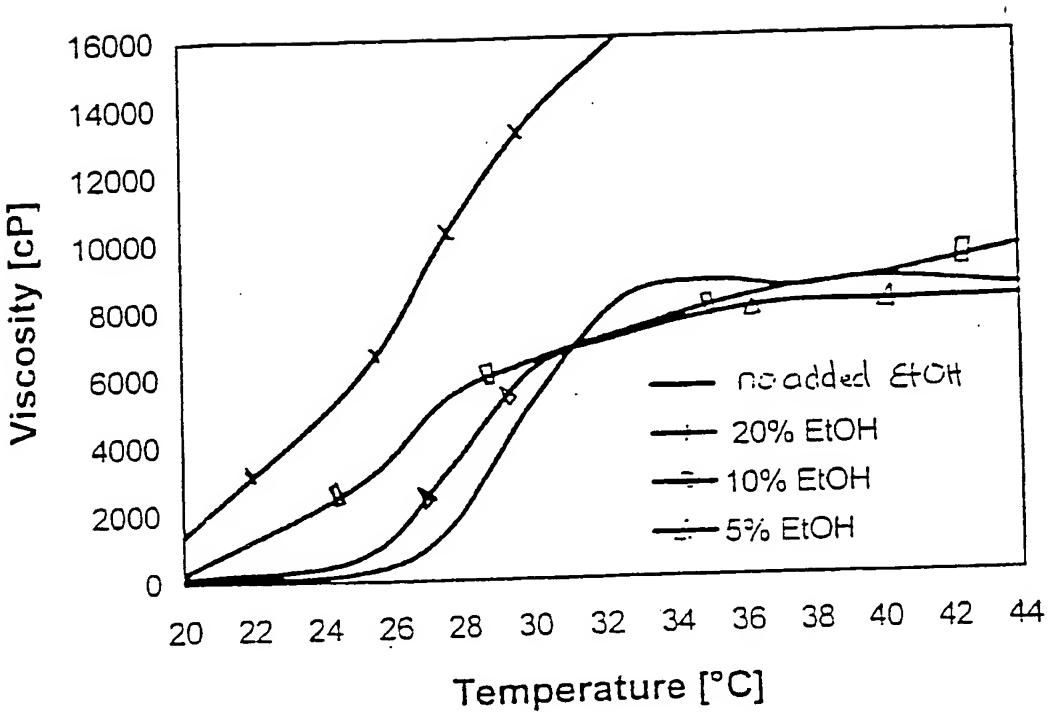

16000
14000
12000
10000
8000
6000
4000
2000
0
Viscosity [cP]
20 22 24 26 28 30 32 34 36 38 40 42 44
Temperature [°C]
no added EtOH
20% EtOH
10% EtOH
5% EtOH

Figure 8

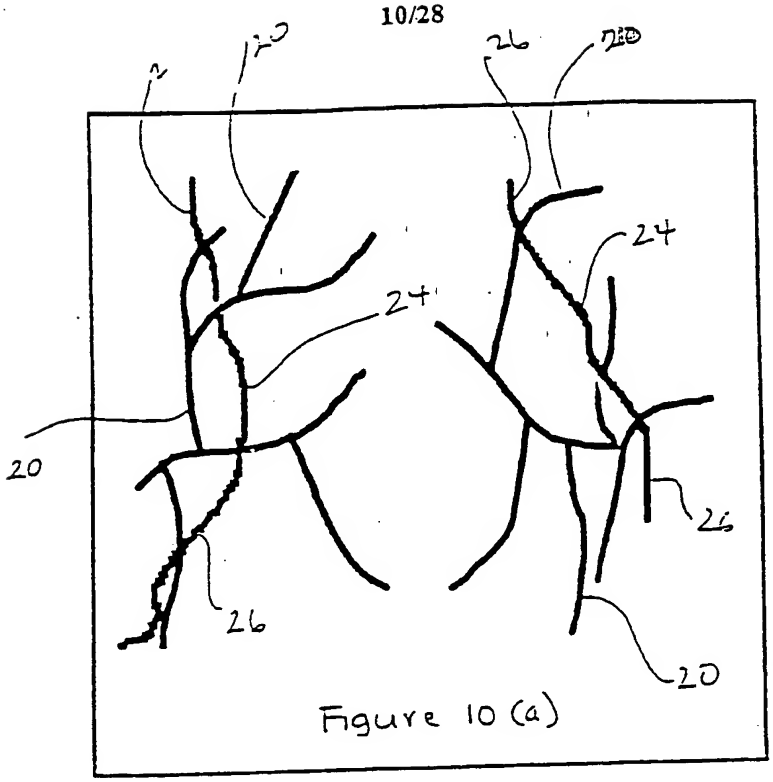


Figure 10 (a)

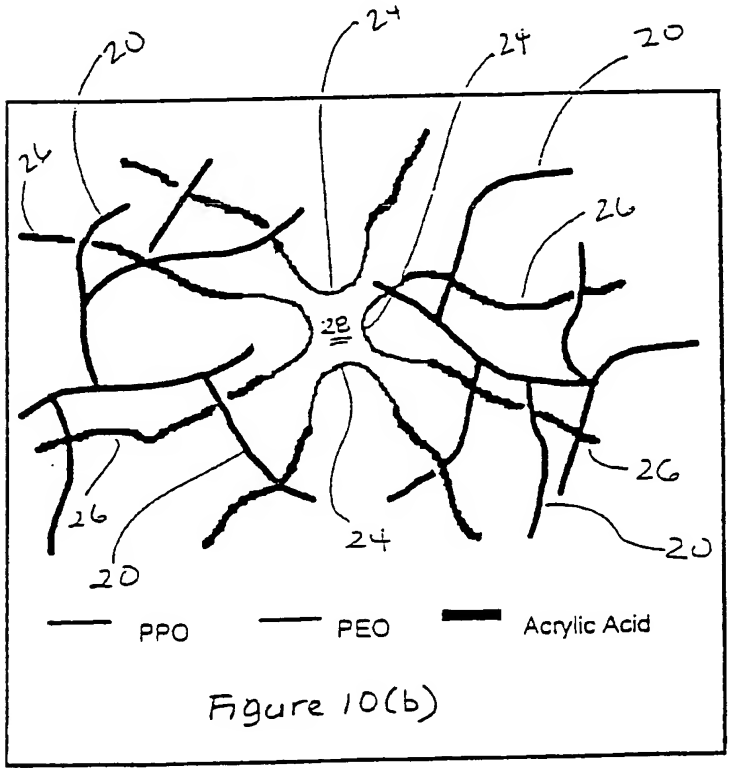


Figure 10(b)

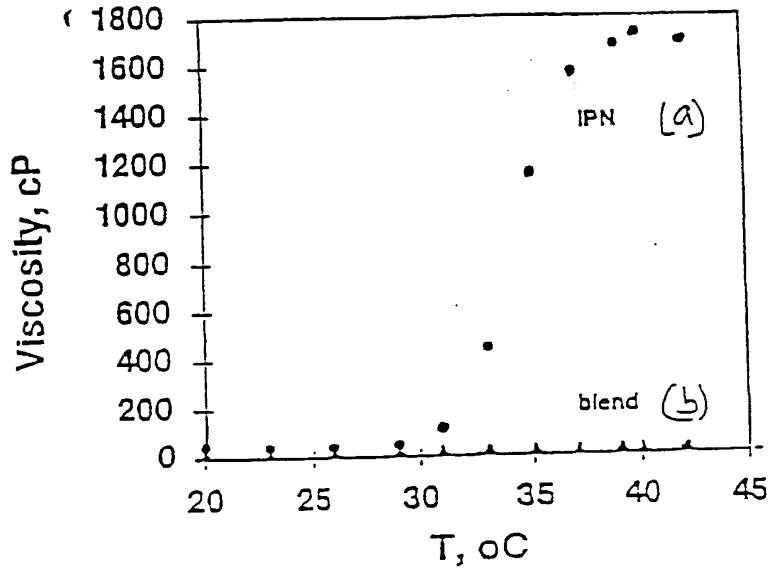

Viscosity, cP
1800
1600
1400
1200
1000
800
600
400
200
0
IPN (a)
blend (b)
20
25
30
35
40
45
T, oC

Figure 12

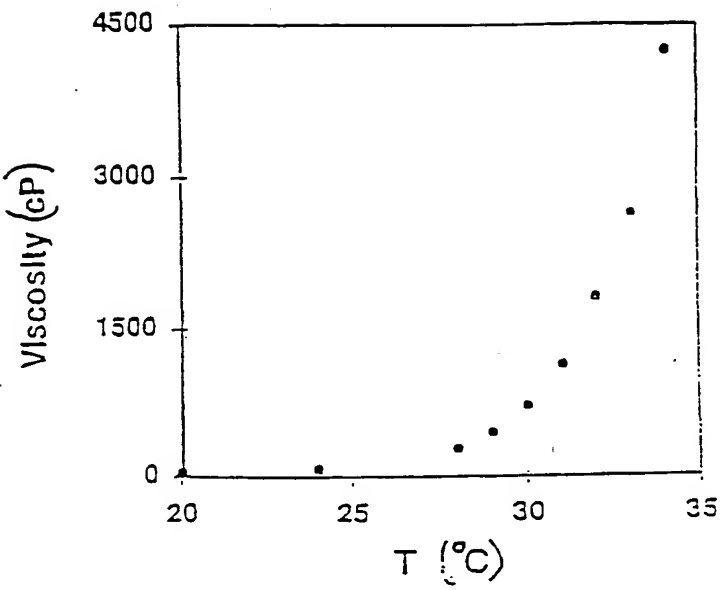


Figure 14

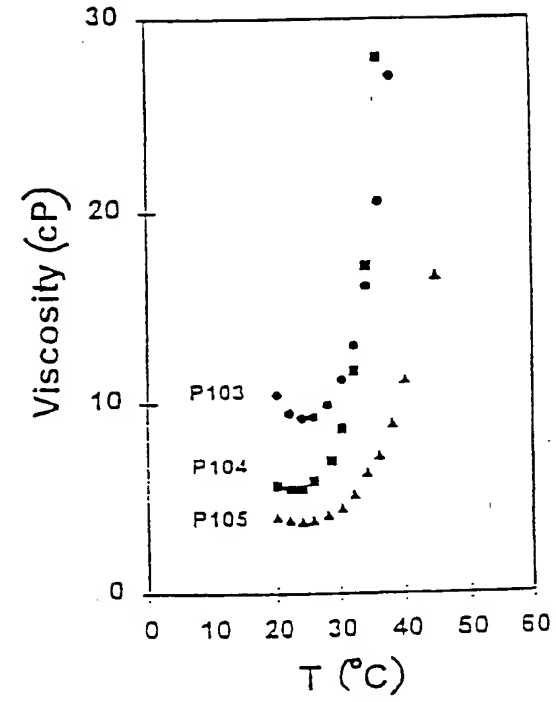


Figure 16

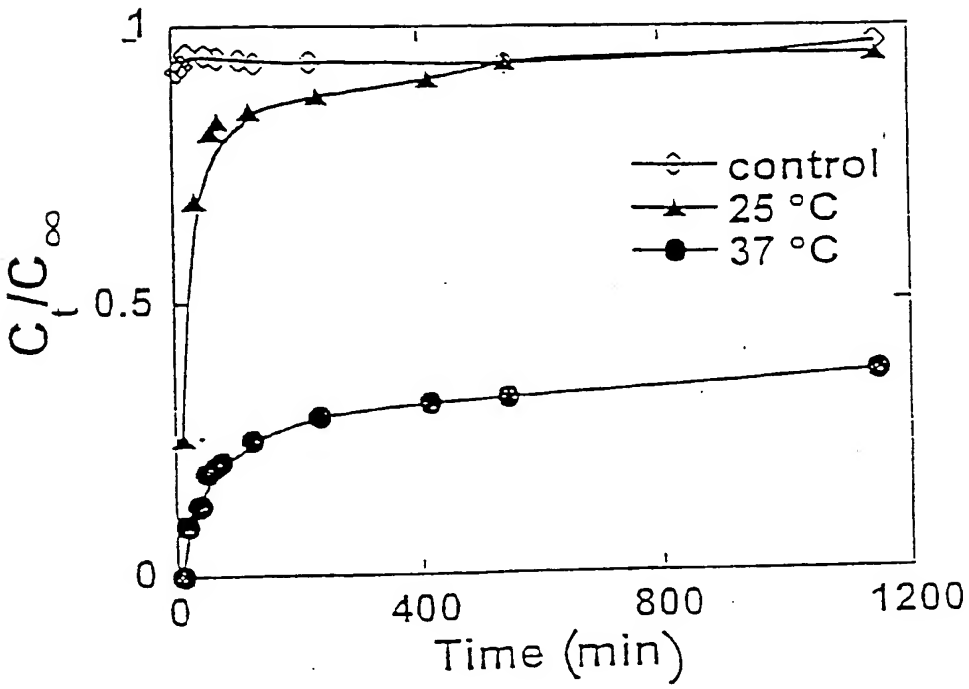


Figure 18

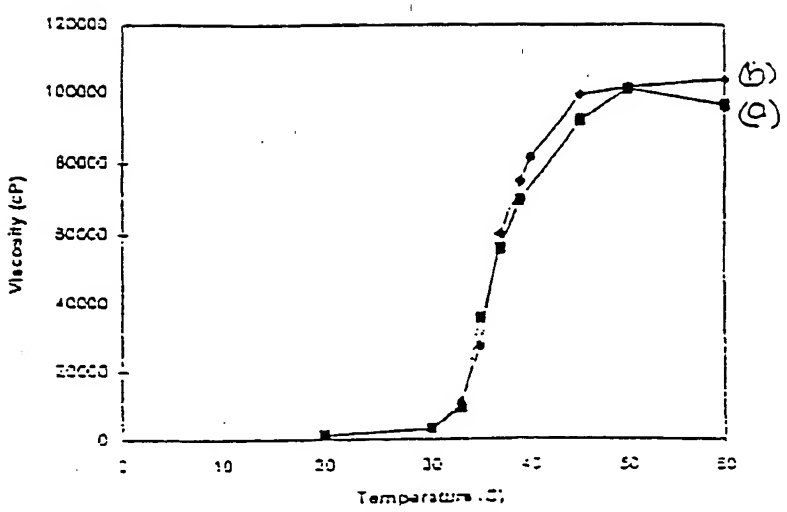

120000
100000
80000
60000
40000
20000
0
Viscosity (cP)
0
10
20
30
40
50
60
Temperature (C)
(b)
(a)

Figure 20

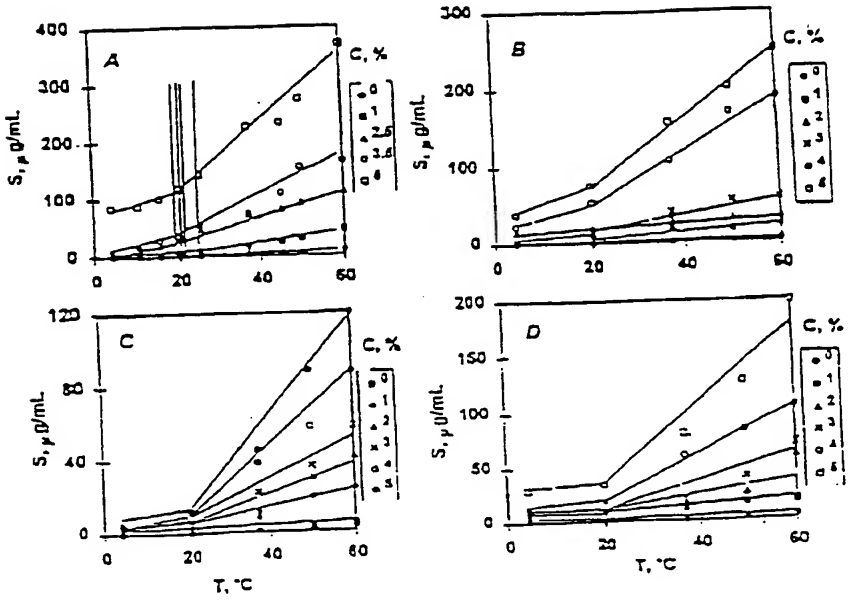


Figure 22

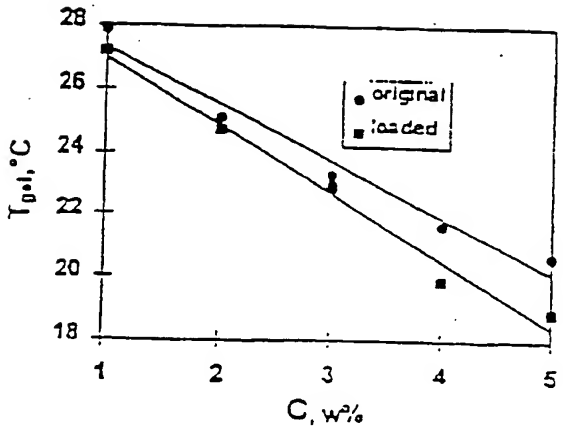


Figure 24

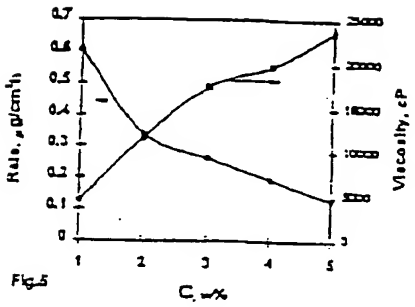


Fig.5

Figure 26

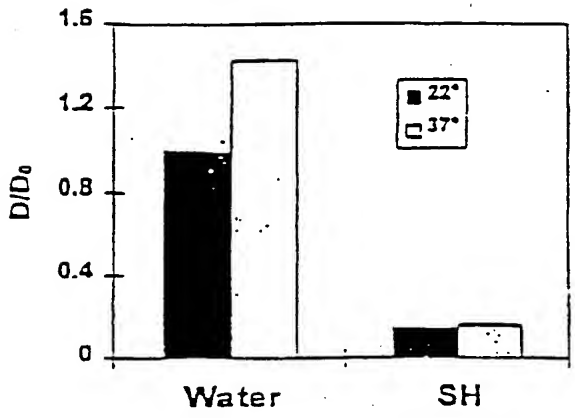


Figure 28

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/08931

A. CLASSIFICATION OF SUBJECT MATTER:
US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 70.7, 78.02, 70.08, 400, 401, 405

Form PCT/ISA/210 (extra sheet)(July 1992)*